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FOR TIMELY, COMPLETE
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December 31st, 1948
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Washington Highlights

The Atomic Energy Commission is making sure that piping of an additional 400,000,000 cubic feet of natural gas daily out of New Mexico and Texas will not endanger fuel supplies for its Los Alamos weapon center. At a Federal Power Commission hearing on the applications of El Paso Natural Gas Company, San Juan Pipe Line Company and the Pacific Gas and Electric Company to build new lines into the San Francisco bay region, legal counsel for the AEC said its Los Alamos, New Mexico, plant and an atomic energy laboratory at San Dia, New Mexico, are dependent on gas from the San Juan field in San Juan County. He said the commission is seeking a certain gas supply for the atomic energy installations for at least 25 years.

John R. Steelman, assistant and economic adviser to President Truman, has been named acting chairman of the National Security Resources Board until a permanent chairman is appointed. Steelman has taken over the duties of Arthur Hill, resigned. The President announced that when a permanent chairman has been designated, Steel will return to his full time post as presidential economic adviser.

Plenty of petroleum probably will be available this winter for everybody everywhere in the country. The Interior Department's oil and gas division is of the belief that there will be enough oil on hand to satisfy all demands, provided no serious emergency arises. Incidentally, the Pacific Coast oil shortage, brought about by prolonged strikes in the area last fall, is at a definite end. A regional advisory committee, set up to prevent wintertime supply emergencies in California, Nevada, Washington and Oregon, has dissolved its subcommittees. The committee was organized by the National Petroleum Council.

An excess profit tax imposed upon industry at this time would have the same effect as a law directly prohibiting further industrial expansion, Robert G. Dunlop, president of Sun Oil Company, told the Joint Congressional Economic Committee.

Dunlop asserted that the oil industry has depended traditionally upon profits to generate funds for expansion. This "internal creation of capital" is needed especially today, he explained, "because current rates of taxation and credit restrictions place limitations on the availability of outside financing."

Profits, he pointed out, enabled the oil industry to expend $2,000,000,000 a year during the last two years to construct new plants and facilities.

The oil executive asked if the proponents of the proposed excess profit tax are willing to take the responsibility of halting this expansion and tell the American people the country has all the plant and equipment needed to insure national security and living standards.

A report of the Federal Power Commission revealed that operating revenues of natural gas companies rose 17 per cent from 1946 to 1947. Sales in the same period increased 16 per cent. The Bureau of Census announces petroleum wholesalers sales and inventories increased 9 per cent in October, 1948, over the corresponding month of the year preceding.

Interior Secretary Krug has named seven California oilmen to serve on the National Petroleum Council through 1949. They are: Rush M. Blodget, Oil Producers Agency; Charles S. Jones, Richfield, S. B. Mosher, Signal; William Keck, Jr., Superior, Reese H. Taylor, Union, Carl A. Johnson, Independent Refiners Association; and E. E. Pyles, Jergins.

Vice president elect Barkley made a surprise airplane flight to Germany to eat Christmas dinner with American pilots flying the Berlin airlift. Barkley carried a special Christmas message from President Truman.

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THE INDUSTRY'S MOST COMPLETE LINE OF OIL FIELD EQUIPMENT

The Extraction of CO_2 Gas from Natural Gas and the Manufacture of Dry Ice Therefrom

By C. D. GARD
California Natural Gasoline Association, December Meeting

Natural gas produced in the Santa Maria Oil Field of California is in several respects unlike that produced in general from other California fields in that it has a relatively low 21.9 natural gasoline of 0.86 G/M, a low liquefied gas content, 0.75 G/M, is high in CO_2 with 16% average, relatively high in hydrogen sulphide content with 34 grains/100 cubic feet average, and a low heating value of 950-960 range. All gas is produced at low pressures only. The field was initially developed in the early 1930's, but production on a large scale was not attained until 1938, and later, during the period from 1938 to 1941, the productive area was rapidly extended, and since that time steady development has gradually extended the productive acreage to its present limits. The oil is of low gravity in the general range 12 to 16° API with some oil produced from wells having API gravity as low as 6.

Because of the many adverse economic factors affecting the gas processing, this feature of the field development was slow, and it was not until after World War II began that conditions warranted the full development of a processing program. Prior to this time, the demand for low gravity, high sulphur, crude oil was such that the crude oil output was not substantial, and since the gas oil ratios were low, being of the order of 300, the total volume of gas did not justify the expense to gather and process the entire field gas output.

Natural Gas Processing

The processing program has been developed in about three successive stages as follows:

1. During the period prior to 1943, the gas from Union Oil leases only was compressed by one 150 H.P. unit to approximately 75 p.s.i.g. and delivered through pipe line to an existing plant, some seven miles south of the Santa Maria field, for processing. Here the gas was commingled with gas produced in this area (Orcutt Field), the gasoline and some L.P.G. fractions removed, the residue gas purified of H_2S and delivered to the Gas Company for sale.

C. D. Gard

2. During the latter part of 1942, plans were made for the gathering of all wet, unconserved gas in the entire Santa Maria field and the processing of this gas in an absorption plant to be constructed at the location of the original compressor, other compressors being added to handle the new volumes of gas. The gas handling capacity of this plant was selected at 18,000 Mcf/day, with the gas being compressed from around 22 p.s.i.g. to 80 p.s.i.g. where it was contacted in two soda ash towers for removal of a portion of the H_2S. The H_2S at that time was about 12-15 grains per 100 cubic feet and the CO_2 content only about 8-9%. The gas was next compressed to approximately 200 p.s.i.g., partially cooled and contacted in beds of dry iron oxide impregnated wood shavings for the final removal of H_2S. The gas was then cooled and contacted in two 200 p.s.i.g. oil absorbers for the removal of natural gasoline and some L.P.G. fractions. This plant was largely built with equipment salvaged where available, and under the circumstances, did not have the benefit of latest design in equipment. An additional compressor was installed later to increase the capacity of the plant to around 22,000 Mcf/day.

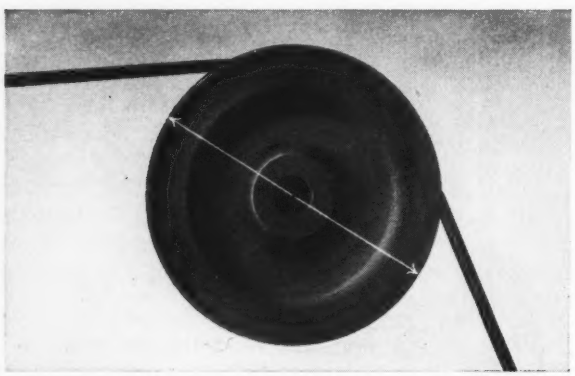
With these facilities some gas was delivered directly to the Southern Counties Gas Company for sale at around 200 p.s.i.g. for local consumption, the balance being delivered to our Orcutt plant for recompression to 400 p.s.i.g. for sale to the Gas Company; this gas being transported to other localities for use. The Gas Company during this period installed a glycol gas dehydration plant within the Santa Maria absorption plant site and made several changes in their transport system to accommodate the larger gas volumes.

3. During the latter part of 1945, plans were laid for the addition of other compressors and a 450 p.s.i.g. absorber to again increase the volume of gas handled. The work included the conversion of a portion of the former 200 p.s.i.g. residue gas system to 450 p.s.i.g. for delivery of gas direct to the Gas Company's transport system, this gas going to areas south of the Santa Maria field. Also, the installation of a new 450 p.s.i.g. residue gas system and changes in the Gas Company's facilities for transporting increased volume of gas to areas north of the field. Changes were also made in the liquid fractionation cycle to retain additional volumes of light liquid fractions and the Gas Company installed a 450 p.s.i.g. glycol gas dehydration plant. As the result of these changes, the plant processing capacity was increased to approxi-

A Columbia wear-saving tip

How to select sheaves

Sheave diameters—and drum diameters, too—should be large enough to keep wearing stresses out of the line as it passes over the sheave. Exactly how large a tread diameter should be depends on service conditions, loads, speed, etc. However, recommended tread diameters below will generally give best service and prolong the life even of Excellay Preformed Tiger Brand which is known for its high resistance to bending fatigue and wear.



Recommended Tread Diameters

Type of Wire Rope	Drums and Sheaves
6 x 7	72 times rope diameter
6 x 19 Seale Patent	51 times rope diameter
6 x 21 Type M	45 times rope diameter
6 x 19 Type N	39 times rope diameter
8 x 19 Seale Patent	39 times rope diameter
8 x 19 Type N	31 times rope diameter
6 x 37 Type S	27 times rope diameter

On any job...any equipment...American TIGER BRAND Rotary Line stands up under toughest usage. It's produced here in the West by Columbia under United States Steel's exacting specifications. Available preformed and non-preformed. Some users pick preformed TIGER BRAND for its ability to resist bending fatigue...because each wire carries its share of the load...because it handles easily, resists whipping, runs smooth and true in the groove.

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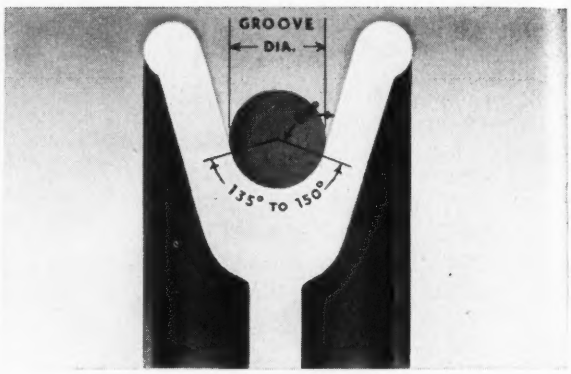


Diameter Tolerances for Grooves

Sheave grooves should be slightly larger than the line to avoid pinching and binding. It should be remembered, too, that as a sheave wears the groove wears *smaller*...not larger.

Nominal Rope Diameter in Inches	Groove Diameter Should Exceed Nominal Rope Diameter by:— (Inches)	
	Minimum	New or Remachined Grooves
$\frac{1}{4}$ to $\frac{5}{16}$	$\frac{1}{64}$	$\frac{1}{32}$
$\frac{3}{8}$ to $\frac{3}{4}$	$\frac{1}{32}$	$\frac{1}{16}$
$\frac{13}{16}$ to $1\frac{1}{8}$	$\frac{3}{64}$	$\frac{3}{32}$
$1\frac{3}{16}$ to $1\frac{1}{2}$	$\frac{1}{16}$	$\frac{1}{8}$
$1\frac{9}{16}$ to $2\frac{1}{4}$	$\frac{3}{32}$	$\frac{5}{32}$
$2\frac{5}{16}$ and Larger	$\frac{1}{8}$	$\frac{3}{16}$

Keep an extra line on hand and be sure it's TIGER BRAND

UNITED STATES STEEL

mately 30,000 Mcf of gas per day. A little later, a 300 H.P. injection compressor was installed in Cat Canyon, another oil field approximately eight miles to the southeast to conserve a portion of the residue gas from the absorption plant.

CO_2 and H_2S Extraction

Prior to this last increase in plant capacity, the CO_2 content of the residue gas had been gradually increasing and had reached objectionable concentrations in the residue gas delivered to the Gas Company, and it soon became evident that with a new residue gas sales contract in the making, a more favorable price for the gas could be obtained by removal of sufficient CO_2 to assure delivery to the Gas Company of 1000 BTU gas. At the same time, the H_2S content had slowly increased from a former content of 12 grains/100 cubic feet to around 30 grains.

Two programs were initiated to improve these conditions; (a) The plans for a CO_2 extraction plant, and (b) An investigation for development of a more effective means of removing greater quantities of H_2S in the primary or 80 p.s.i.g. plant as the operation of the dry oxide beds was becoming expensive. At the same time, with the increasing CO_2 content, the amount of H_2S removed by the soda ash contactors became less, the sodium carbonate being rapidly converted to bicarbonate by the CO_2.

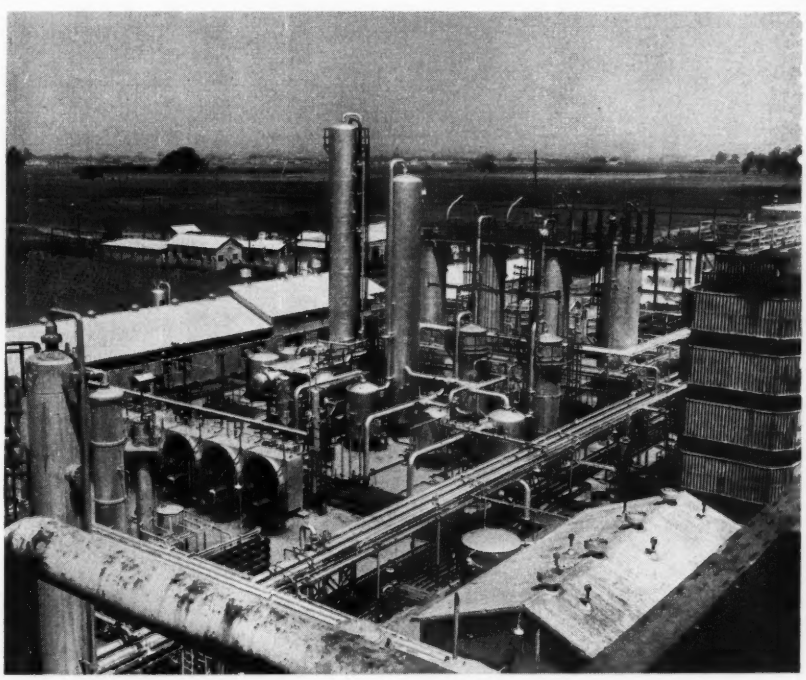
The CO_2 Extraction Plant

The plans for building the extraction plant materialized in June, 1947, after reviewing various processes for CO_2 removal. The selection of the Girbotol system was made after consideration had been given to the possible manufacture of dry ice from the extracted CO_2, as it was believed that the minimum H_2S content of the extracted CO_2 resulting from the use of this process would be an advantage if dry ice were made. The design of the process was made by the Girdler Corporation of Louisville, Kentucky, using monethanolamine as the solvent, it being more favorable for the extraction of the CO_2 with minimum H_2S content.

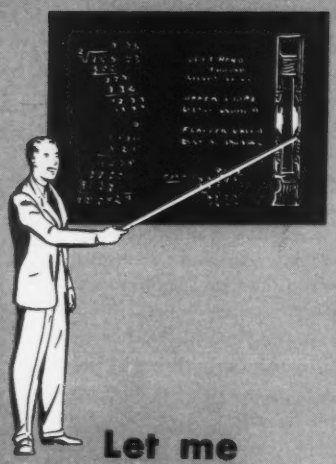
The completed plant was placed in operation in May, 1948. The details of the process as developed employ a 20% solution of monoethanolamine with water. This solution is pumped over the top of a Southwestern Engineering Company 20 tray absorber, 90 inches in diameter, with an overall height of 49'-9", having a design pressure of 127 p.s.i.g. The design liquid rate is 280 gallons per minute and the design gas throughput 30,000 Mcf per day at 80 p.s.i.g. The enriched solution leaves the base of the absorber through a liquid level control valve passing through a set of three Southwestern Engineering Company exchangers, where it is heated by the hot lean solution from the reactivator, and then to the 21st tray of a 23-tray Southwestern Engineering Company reactivator, 72" in diameter and having an overall height of 59'-9" with design pressure of 94 p.s.i.g. and a design vapor capacity of 2100 Mcf per day of CO_2 and 6112 pounds of steam per hour. The amount of CO_2 extracted at present is approximately 2300 Mcf/day. The hot amine solution in the reactivator is contacted by steam vapor generated in two Southwestern Engineering Company reboilers operating in parallel.

Heating steam for reboilers is obtained from the turbine exhaust of steam driven pumps and fans. Exhaust steam from the absorption plant, formerly going to the atmosphere was conserved to give additional heating steam. Any deficiency in heating steam is supplied directly from the main steam header operating in the range of 150-155 p.s.i.g. The flow of steam to the reboilers is volume-controlled through a flow controller.

The reheated amine solution after passing through the reboilers is returned to the base of the reactivator and from there it goes to the exchangers, then to the Santa Fe Tank and Tower Company Multifin coolers, where the temperature is reduced from 200°F to approximately 130°. From the Multifin unit, the cooled solution goes to the final Southwestern Engineering Company water-cooled closed coolers, where the temperature is reduced to approximately 100°. The cooled lean solution then goes to the Byron Jackson centrifugal pump driven by 32 H.P. General Electric steam turbine, operating at 3550 RPM. The cooled lean solution from the pump returns to the



Picture of general arrangement of the plant and the absorption plant area. Two columns in the center are the amine absorber on the right and the amine activator on the left. The two short columns on the right of the absorber are the soda ash-ferrox contactors and the four larger columns at the rear are the dry oxide beds.



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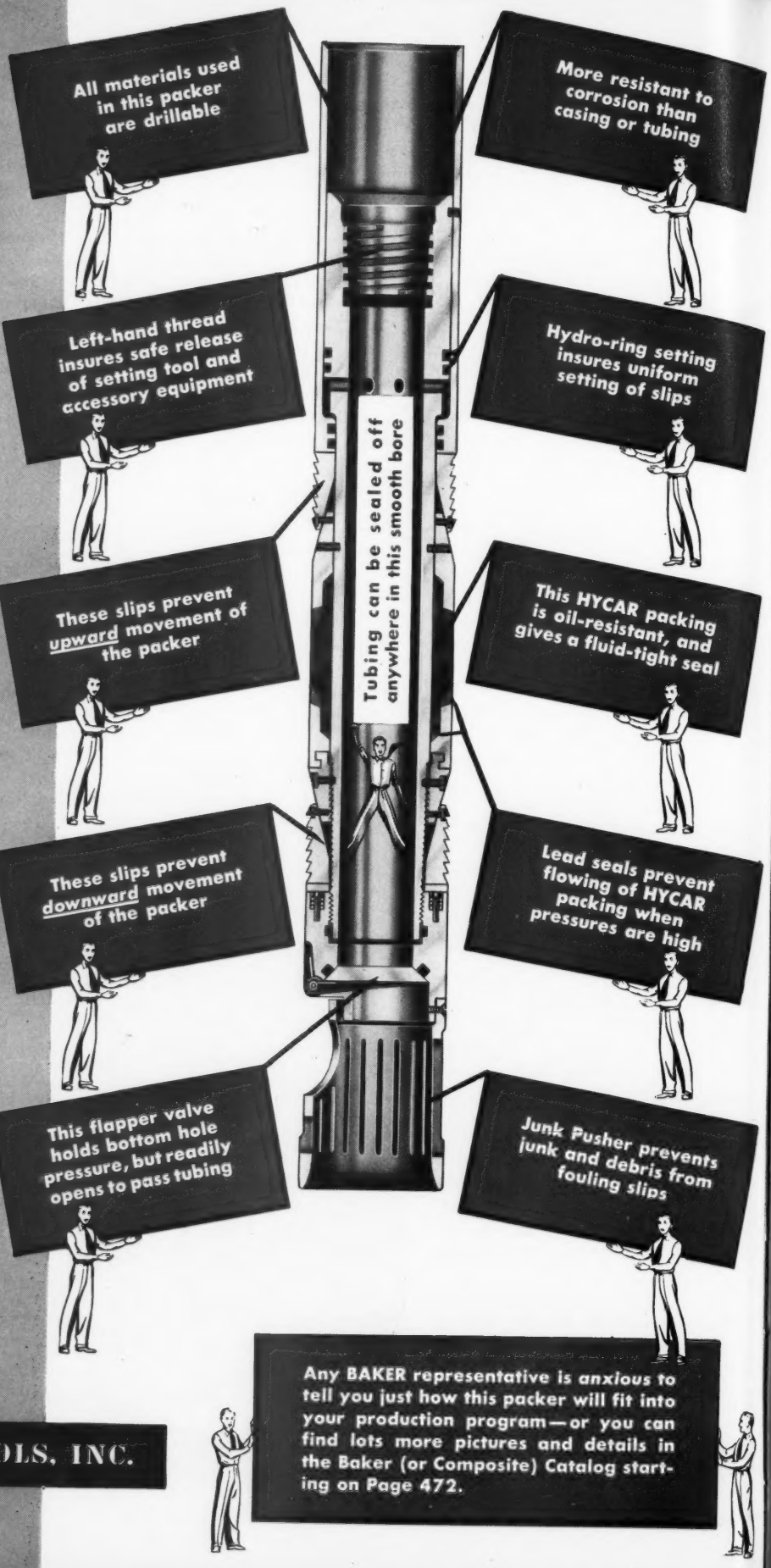
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BAKER OIL TOOLS, INC.

19th tray of the absorber, thus completing the cycle. A flow controller on the liquid line to the absorber controls the solution rate.

The CO_2 gas stripped from the rich amine, together with the steam generated in the reactivator, leaves the reactivator in two streams, one from the top of the reactivator, the other from the vapor space above tray No. 20. This feature was incorporated to provide a choice of selecting the CO_2 stream that would have the lowest H_2S content for processing in the dry ice plant, providing such a plant was constructed. Each of these streams is separately cooled and the water condensed by first passing through sections of the Multifin cooler. The final cooling of the two CO_2 gas streams is accomplished by closed shell and tube type coolers, the water being supplied by a Byron Jackson gas engine driven circulating pump. The temperature on the overhead stream being cooled from 212°F to 85°F in the Multifin unit and to a final temperature of approximately 75°F in the final cooler. The side cut stream is similarly cooled from 220°F to 85°F, the final temperature being approximately 75°F.

Vapors and water condensate from the final vapor coolers then pass to two separate accumulators, where the gas is vented and the condensate collected and returned to the system by a common pump with two separate liquid discharges. One of these liquid streams, about 2.5 G/minute, is returned to the 23rd tray of the reactivator, the other stream is returned to the 20th tray of the absorber. The purpose of returning this condensate is to conserve any amine present and to reduce the carry-over of the amine in the overhead streams from the reactivator and the absorber. Control equipment was installed to vent the overhead stream and further process the side cut stream in any desired quantity or the mixing of the two streams and the processing of a portion of the mixture.

The Multifin units are of the horizontal type with four 12′ Moore Company fans each supplying approximately 128,000 cubic feet per minute for cooling the hot lean amine, the reactivator overhead and side cut vapors. These fans are driven by 15 H.P. General Electric turbines operating at 2200 RPM driving the Moore fans through Western Gear Works speed reducing units, the fans operating at a normal speed of 328 RPM. The exhaust steam from the fan turbines and solution turbine at approximately 55# back pressure is used for heating steam in the two reboiler units as previously described. The steam condensate formed in the two reboilers is collected in an accumulator at approximately 50 p.s.i.g. from which it is returned to the boiler feed by means of a 12″-7″-16″ Burnham Union steam pump.

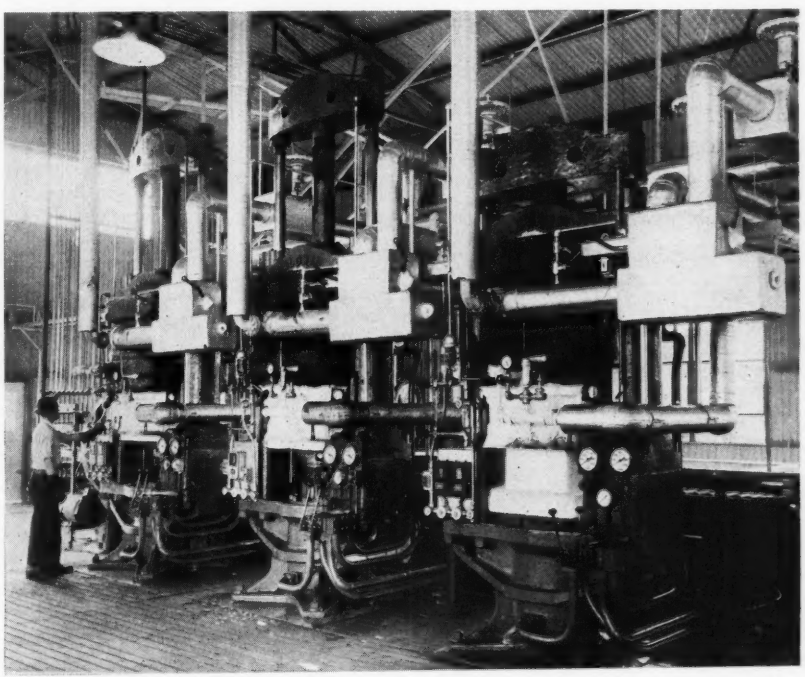
In order to provide steam for the Girbotol plant, it was necessary to install additional boilers, the final selection being two Union Iron Works Type S boilers having a generating capacity of 21,000 pounds of steam per hour. Boilers will operate at a normal rating of 21,000 pounds per hour, but each boiler is capable of producing the maximum steam requirement should the other boiler be down for repairs or cleaning. Gas is used for fuel and the flue gases are vented into a common stack, the main body of which is 48″ in diameter with the top 130′ above ground level.

The Redistillation Unit

A redistillation unit was installed to provide a means of removing residues formed in the amine solution. This unit employs a reboiler unit through which a small stream of approximately one gallon per minute of amine is circulated for cleaning. Steam heat is supplied to the heating coils of the reboiler. The unit operates at atmospheric pressure and the overhead purified stream is returned to the circulating system. The principal impurities which form the residue are thiosulphuric acid formed by a reaction between H_2S and oxygen and soda ash entering the solution from the soda ash contactors. The residue accummulates on the heating coils of the reboiler, and in time the heat transfer is reduced to the point where it becomes necessary to shut off the amine stream and agitate the heavy residue mass and accummulation on the tubes with steam entering a distribution pipe at the bottom of the reboiler. This operation is repeated, draining and refilling with fresh water until the heavy residue has been removed.

H_2S EXTRACTION PLANT

As previously mentioned, the ori-



Picture of dry ice presses viewed from the operating side. The press at the left is being filled with liquid, the press in the center is "snowing," and the press at the right has just ejected a dry ice cake from press chamber.

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A Heavy-Duty Rig for Deep Drilling

The Bethlehem Tornado is a substantially constructed, 3-engine rig designed for drilling to 13,500 ft.

Its basically-balanced draw works has an integral heavy-duty frame built to resist the shocks of drilling operations as well as the twisting encountered in field handling. All shafts are made from forged, heat-treated alloy steel. Bearings are of the self-aligning roller type with capacities far in excess of normal practice.

The chain-type transmission and compounding elements of the Tornado are moved by direct-acting, self-adjusting air clutches that allow smooth, instant operation. The transmission provides six different changes in rotary speeds and hoisting speeds.

The rugged and highly-flexible Tornado is easily operated from the driller's position by means of convenient feather-touch air controls.

IMPORTANT FEATURES OF THE *Tornado!*

Fingertip Controls	Extra Braking Area
Self-Adjusting Air Clutches	Alloy Steel Brake Rims
6 Hoisting Speeds	Enclosed Water-Cooled Brakes
6 Rotary Speeds	4-Foot Stepdown
Force-Feed Lubrication	Hardened Cut Sprockets
Totally Enclosed	Enclosed Chain Compound
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ginal equipment installed at the plant for the removal of H_2S from the natural gas consisted of two contactors in which the natural gas was contacted by a soda ash solution, the solution being aerated in a small forced draft type cooling tower. After aeration, the solution was pumped from the basin of the tower to the contactors. To reduce the effects of H_2S on the process equipment, the incoming gas after being compressed from approximately 20 to 80 p.s.i.g., was contacted in the soda ash contactors, further compressed to around 200 lbs., at which pressure, the final purification of the gas was obtained by passing it through beds of iron oxide impregnated wood shavings before going to the 200 lb. absorbers or additional compression for that portion of the gas processed in the 500 lb. absorber.

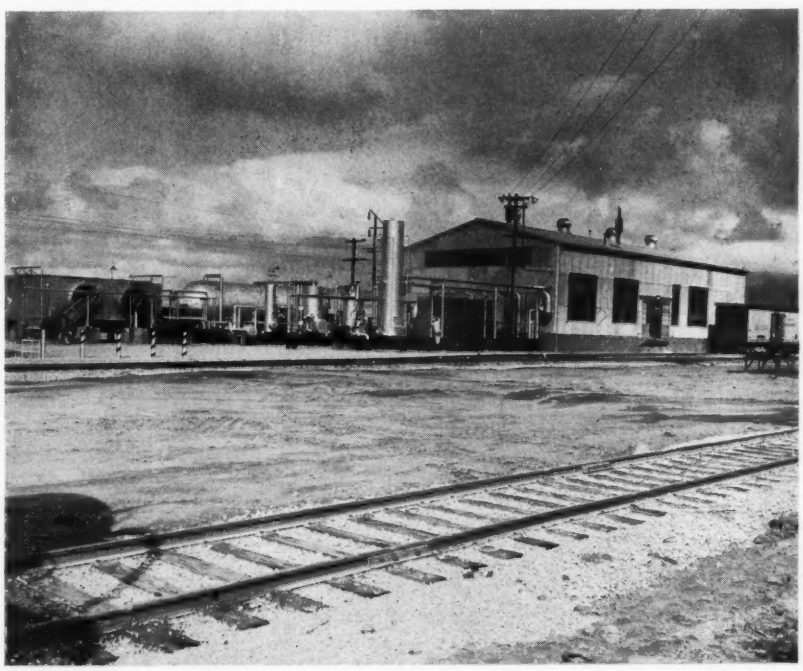
In reviewing the various possibilities for improving the extraction in the soda ash towers, the idea of carrying finely divided iron oxide suspended in the soda ash solution seemed to offer possibilities. A trial operation was made using ferric chloride as a source for the iron. It was noted that the iron rapidly turned to iron sulphide, and the H_2S content of the exit gas was considerably reduced. Many difficulties with this process, however, were experienced; these difficulties being chiefly in the reconversion of the iron sulphide to iron oxide before returning to the contractors. A great deal of work was done along this line and the process that was eventually developed uses a soda ash solution in which is suspended the iron oxide. After passing through the contactors, the foul solution is vented in a separator to remove as much of the hydrocarbon gas as possible. It then passes through a series of long, horizontal troughs in which the foul solution is agitated with air, converting the iron sulphide to free sulphur which floats to the top of the liquid, and iron oxide which remains suspended in the solution. The free sulphur slurry is removed from the troughs by skimming and the reactivated solution is returned to the contactors to complete the cycle.

As a result of this development, the H_2S content of the gas is reduced from an average intake of 34 grains per 100 cubic feet to an outlet of 3-4 grains per 100 cubic feet. Ferric chloride is still used as the source of the iron oxide, and the overall H_2S removal operating cost has been considerably reduced. The sulphur in the slurry is in the pure form; however, associated with it is a high percentage of water with some soda ash and iron oxide. No process changes have been made in the operation of the dry oxide beds and their replacement cost has been materially lessened. In an attempt to derive an income from the sulphur removed by this process, amounting to approximately 1100 pounds per day, the H_2S slurry is presently being washed with waste water from the cooling tower system. This water is normally wasted to control the concentration of total dissolved solids for the purpose of lessening scale deposits on the cooling and condensing equipment of the absorption plant system. This washing is quite effective in increasing the sulphur content of the slurry, and it now appears likely that a market can be developed for the sulphur, either in a slurry form or in dry powder, the drying being an operation not now programmed.

The Dry Ice Plant

While the engineering of the CO_2 extraction plant was in progress, a proposition was submitted to Company Management for the installation and construction of facilities for converting the extracted CO_2 into dry ice on the assumption that definite market existed for increased dry ice production and that the anticipated revenue from the operation would be sufficient to retire the investment and show a profit in a reasonable time. The consumption of dry ice has rapidly increased in the past few years, the rate of increase being retarded by lack of ability, during the war years, to secure material and equipment for installation of new plants.

While the manufacture of dry ice is not a new industry, it may be interesting to review some of its sources and uses. Commercial carbon dioxide for the manufacture of dry ice is obtained from vent gases from boiler stacks, fermentation vats at industrial alcohol plants, chemical manufacturing plants, and natural wells producing carbon dioxide of relatively high purity. It is



General view of the dry ice plant and railroad spur. On the extreme left is the CO^2 gas cooler and condenser. The large horizontal vessel to the right of the cooler is the CO^2 liquid storage. The smaller vessels are primary CO^2 liquid accumulator and flash drums. Dry ice press, storage bin and compressors are located within building, with the dry ice car to the extreme right.

"CBV" COMBINATION BALANCED VALVES
For Precision in Gas Regulation

The right gas pressure with continuous control is a prime need supplied by the "CBV" type regulators. These are combination balanced valves built in two interchangeable styles—either offset connected or direct connected.

The offset model allows easy access to inner valve assembly through a hand hole plate. It does not require removal of the entire superstructure to examine or change the valve assembly. In changing from a high to a low pressure regulator, the diaphragm chamber unit is replaced and the rocker arm shaft is changed to a low pressure rocker arm shaft. The offset connected style has a fulcrum between the diaphragm and valve assemblies.

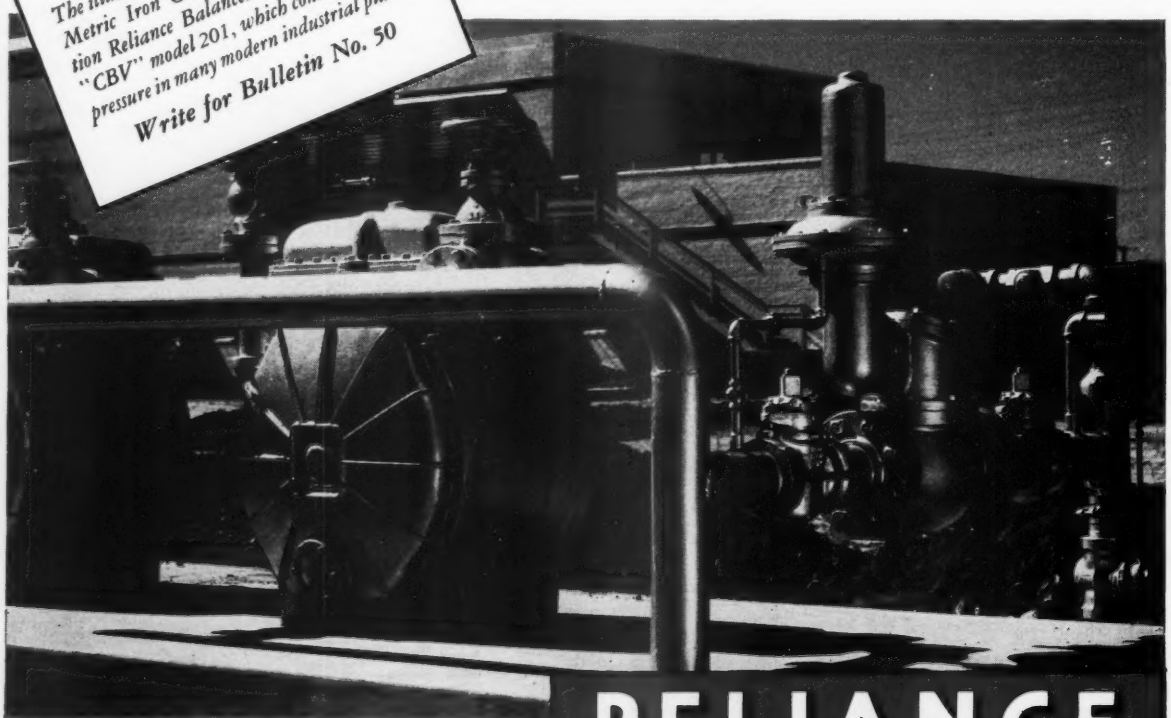
In the direct connected regulator, the diaphragm assembly is connected straight through to the valve assembly. It comes in three optional types: the high pressure weight-loaded; spring-loaded; or pilot-loaded. This model also has interchangeable parts which permit switching to a spring or pilot-loaded assembly. The change is made by replacing the pressure lever cap with the spring housing unit or with the pilot cap. These quick and easy changes help to meet new needs and specifications.

Both offset and direct connected models are offered in high pressure weight-loaded, spring-loaded, or pilot-loaded types. Low pressure models are pilot-loaded or weight-loaded, either inside or outside weights being available. Semi-low pressure regulators are made in pilot-loaded or outside weight-loaded types. The low pressure and semi-low pressure regulators are offered only in the offset style. A 3.4 to 1 ratio is maintained to provide better lock-up under low pressures.

Valve body castings are the same for either high pressure or low pressure types. A free flow of gas is provided at the point of expansion and body friction is reduced to a minimum. Directional flow arrows are cast into both sides of valve body castings for the user's convenience.

The illustration below shows an American Metric Iron Case Meter and combination Reliance Balanced Valve Regulator, "CBV" model 201, which controls the gas pressure in many modern industrial plants.

Write for Bulletin No. 50



American Meters

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVENUE ALHAMBRA, CALIFORNIA

believed that the project at Santa Maria is the first plant to commercially extract carbon dioxide from natural oil well gas for the manufacture of dry ice.

Some of the interesting industrial uses are: in experimental low temperature rooms for the testing of airplanes and airplane equipment operations at low temperatures, for low temperature processing of aluminum rivets, for inflation of life preservers and life rafts, processing blood plasma, and preservation of meats, fruits, vegetables, and flowers in transit. The motion picture industry has used dry ice in the production of several movies in which a dense fog or cloud scene was required.

Dry ice is a source of domestic and industrial cooling, having a temperature of minus 109°F with no residual waste produce presenting a disposal problem. It is chemically inactive generally in its contact with food products and has little or no effect on the moisture content of such foods. In its packaged form it is readily transported under atmospheric pressure in specially insulated containers. These characteristics suggest the possibility of a greatly expanded use. Individual handling of the packaged cakes presents no particular hazard, although caution must be exercised to not permit contact with the exposed parts of the human body. Such contact may cause severe skin injury similar to that received by contact with a high temperature substance. Carbon dioxide is nonpoisoning but may produce suffocation. Carbon dioxide or dry ice, therefore, should never be confined to non-ventilated rooms in which people may be present.

It has been estimated that commercially, liquid carbon dioxide and dry ice are used in the following percentages:

As carbon dioxide gas for carbonating and industrial uses ..26%

Dry ice for foods, including transportation of meats 20%

Dry ice for ice cream and dairy products 40%

Dry ice for industrial users 14%.

Considerable time was spent by our engineering staff in reviewing the operations of existing plants as well as theoretical considerations, at the close of which it was decided to employ the Girdler Corporation to furnish the necessary engineering design and purchase of equipment for installation of a plant for the manufacture of dry ice, this plant to be located adjacent to the gas and oil treating facilities on the Battles Lease.

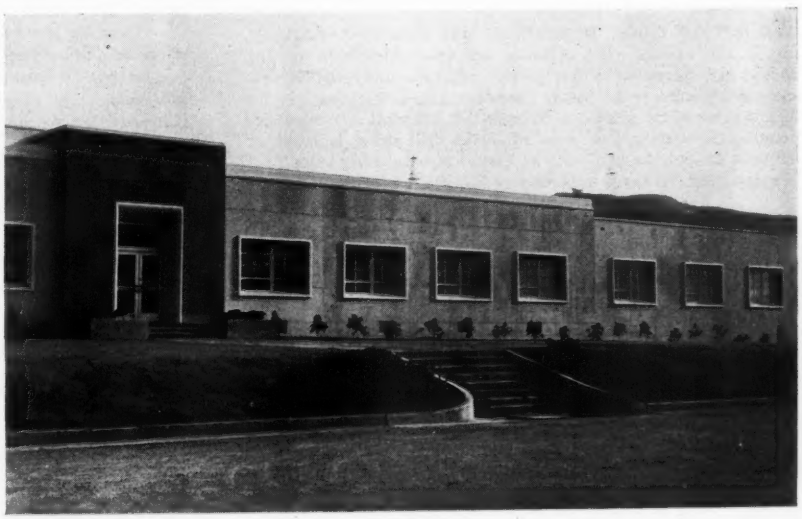
THE MANUFACTURE OF DRY ICE

The process of making dry ice as practiced at the Santa Maria plant involves the purification of that portion of the CO_2 stream vented from the reactivator overhead or side cut condenser which is to be processed for the manufacture of dry ice. There exists in the total CO_2 stream now being removed from the natural gas stream approximately 130 tons of CO_2 per day. The maximum volume of CO_2 gas processed in the dry ice plant is anticipated to be approximately one-half this volume, the plant having a design rated capacity of 56 tons per day. After reviewing the process cycle used by some existing dry ice plants and discussing the problem in detail with the Girdler Corporation, it was decided to employ the Girdler Corporation for the design of the plant and the purchase of the materials.

The ultimate design deviated from the practice of using supplemental refrigeration for obtaining low temperature CO_2 liquid. The CO_2 gas from the final condensers at the extraction plant is under approximately 20 p.s.i.g. and, therefore, the total horse-power required to compress the CO_2 gas from this pressure to 1000 to 1100 p.s.i.g., where cooling to atmospheric temperatures would give CO_2 liquid is not as great as had the pressure of this gas been around atmospheric, as is often otherwise the case. An engineering study of the problem indicated that it would be to our advantage to obtain the necessary low temperature CO_2 liquid by stage venting and recycling the vented vapors rather than applying mechanical refrigeration for this purpose.

Purification of the CO_2

In the selected process, the 20 pound gas from the extraction plant is passed through two 48" double contact purification columns operating in series. The CO_2 gas stream enters the lower portion of the first of these two columns where it is contacted with a portion of the ferric oxide-soda ash solution used in our primary H_2S extraction plant. This contacting removes practically all of the H_2S in the CO_2 stream. The original design provided for contacting the gas in the upper portion of this first column with a solution of borax and potassium chro-

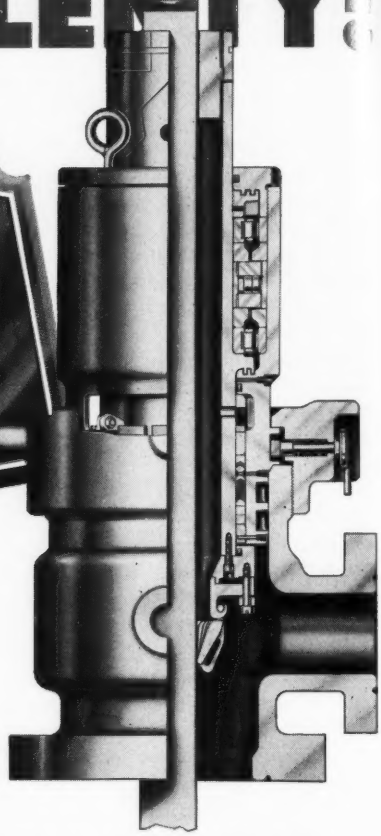


Exemplifying the increased emphasis on oil field research in the petroleum industry is this $1,000,000 laboratory which has just been constructed by California Research Corporation, Standard of California Subsidiary, at La Habra, Calif. Here, research scientists will attempt to develop new and improved methods of finding oil and gas accumulations and for increasing the economic recovery from known accumulations through improved production practices. The building is located literally in the shadow of the oil derricks of Murphy-Coyote oilfield which can be seen in the background.

What's in a name? PLENTY!

Have you ever stopped to analyze this name?...

SHAFFER
COMBINATION
ROTATING BLOW-OUT PREVENTER
AND STRIPPER



THE NAME *"Shaffer Combination Rotating Blow-Out Preventer and Stripper"* **is a long one — *but actually it's not long enough to even begin to outline the many unique features incorporated into this unusually complete pressure control unit.***

FIRST, CONSIDER THE WORDS "COMBINATION BLOW-OUT PREVENTER AND STRIPPER": Unlike conventional pressure control equipment, this unit is BOTH a Blow-Out Preventer and a Stripper — combined into *one* compact unit. As a Blow-Out Preventer it maintains a *continuous* pressure-tight seal around *any* and *all* shapes and diameters* in the drill string — whether square, hexagon or octagon kellys... flush or upset pipe, couplings, tool joints or drill collars. That in itself is a very important advantage!

AND NOT ONLY DOES IT MAINTAIN THIS SEAL CONTINUOUSLY, but it also adjusts itself *instantly* and *automatically* to varying shapes and diameters as they pass through the unit — *all without manual attention of any kind.* Therefore it is a "Stripper" in the fullest sense of the word — a Stripper that *automatically* maintains complete pressure control even while the drill string is raised or lowered through the unit—*and no special pipe handling procedures are necessary.* So that's another very important advantage!

HOW ABOUT THAT WORD "ROTATING"? It highlights still another vital feature, for this unit is not only both a Blow-Out Preventer and a Stripper, but it also maintains complete pressure control *while the drill string is rotating.* It even maintains a leak-proof seal around *all* types of kellys while they rotate — even square ones — without damage or wear on the Stripper Rubber!

You see, the kelly and Stripper Rubber rotate *together* — not one inside the other. This eliminates continuous wear and flexing of the Stripper Rubber, yet permits rotation to be maintained while the drill string is sealed off *at all times* against pressure emergencies. It's obvious that this is a very important advantage, too!

AND OF COURSE THAT WORD "SHAFFER" is mighty important because it tells you that this unit is backed by pioneers in the development of high pressure control equipment — an organization with a *quarter of a century* of leadership, experience and integrity behind every product it makes.

**Excepting such abnormally large diameters as reamer or bit.*

Actually the name is not long enough...

It doesn't indicate how the Shaffer Combination Rotating Blow-Out Preventer and Stripper is completely *automatic in its action, always maintaining its full pressure seal without manual operations of any kind. No valves to turn, nothing to tighten or loosen, no operations to remember — or forget — when pressure emergencies arise. It is* always *sealed around the drill string!*

And the name doesn't even hint at such other vital features as the unique bearing design *that assures smooth wobble-free rotation without maintenance... or the pre-packed* lifetime *bearing lubrication... or the special barrier of expandable steel latches that safeguard the Stripper Rubber against damage by large diameters, and against extrusion by high pressures... or the simple way in which such large tools as bits and reamers can be readily passed through the unit by simply pulling a latch and rotating the bonnet 1/6th turn to open the body to full casing diameter.*

In fact, although we have mentioned only a few of the many really unique features combined into the Shaffer Combination Rotating Blow-Out Preventer and Stripper, you can readily see that the name isn't half long enough. Before you invest in any pressure control equipment, why not let us give you the *complete* story on this versatile, trouble-free, highly-efficient Shaffer product?

25 years OF OIL TOOL LEADERSHIP

SHAFFER

HIGH PRESSURE DRILLING AND CONTROL EQUIPMENT • FISHING TOOLS THAT EXCEL

SHAFFER TOOL WORKS, Brea, California • California Service Shops: Santa Fe Springs and Taft
HOUSTON, TEXAS, 6006 Navigation Blvd. • ODESSA, TEXAS, 1925 West Second Street
OKLAHOMA CITY, OKLAHOMA, Acme Oil Tool Company, 1001 S. E. 29th Street
EXPORT SALES OFFICE: Shaffer Tool Works, 500 Fifth Avenue, New York, N. Y., U.S.A.

Write for your free copy of the Shaffer Catalog. See pages 3843 to 3894 of your 1948 Composite Catalog for data on the full Shaffer line.

mate. However, a short period of operation indicated that the solution was used up at such a rapid rate the cost would be objectionable, and it is our plan to circulate our ferric oxide solution in the upper half replacing the chromate solution. The ferric oxide solution can be reactivated and no means were provided for reactivating the chromate solution. The CO_2 stream passes from the first column into the lower portion of the second column where it is contacted with potassium permanganate solution. The upper portion of the column also contacts the gas with permanganate solution. The spent solution from the lower portion is discarded and replaced by the partially spent solution from the upper portion. The uppor portion is then recharged with fresh solution. The first column removes all of the H_2S and the second column will remove any traces of H_2S that might pass through as well as traces of amine which might give the ice an objectionable odor. The liquids are circulated through the columns at the rate of 30 gallons per minute, each liquid stream being separately pumped.

CO_2 Compression and Liquefaction

From the outlet of the second column the purified CO_2 stream is delivered to the intake of the compressors at the dry ice plant. Here the gas is compressed to 140 p.s.i.g., cooled, and then goes to the second stage compressors, where the pressure is raised to 520 p.s.i.g., then cooled, dehydrated, and further compressed to sufficient pressure to cause liquefaction to occur at the temperature of this stream leaving the final cooler. A maximum condition of 1100 p.s.i.g. and 85°F was anticipated.

CO_2 Dehydration

To avoid difficulty of freezing in the colder streams of CO_2 liquid and vapor, it became necessary to dehydrate the CO_2 gas stream prior to the liquid stage. This was accomplished by installation of a Pritchard Hydryer unit on the suction to the final stage of compression of CO_2. The gas dryer consists of two units which may be alternately placed in operation by means of a manifold. Each unit is filled with 1200 pounds of activated alumina and is capable of removing 7 pounds of water per hour from 12,000 pounds per hour of CO_2 gas with a final dew point of -40°F. The design pressure of the unit is 650 p.s.i.g. The operating cycle is eight hours. The beds are reactivated by blowing air, heated by a steam heater through the saturated bed and venting to atmosphere. The air is heated to about 320°F, and air from the Hydryer has an initial temperature of approximately 40°, gradually increasing as the temperature of the bed increases, reaching a maximum of approximately 250°. After five hours of heating, the steam is turned off from the air heater and the cooled air is permitted to flow through the vessel for approximately two hours. The vessel remains idle for approximately one hour and is then ready for placing on the line. The temperature of the dried CO_2 stream leaving the bed is in the range of 60 to 70°. The beds are continuously alternated.

CO_2 Cooler and Condenser

It was realized that for short periods each year temperatures normally obtained by the conventional cooling tower method might be above the critical, in which case, no condensation would appear. The type of cooling tower selected, therefore, was an evaporative cooler. The unit selected was Industrial Engineers' in which two fans are separately driven by gas engines. These engines also drive separate water circulating pumps. The fans are 5 feet in diameter, operating at 550 RPM. The pumps are Byron Jackson Rain type, with a normal rating of 700 gallons at 1348 RPM and 60′ head. The fan drive is accomplished by V belt, the pumps are direct connected to the engine.

Liquid Expansion

Liquid from the high pressure accumulator is float-controlled into a 3′ x 8′ vertical vent tank operating at 510 p.s.i.g. Vapor is vented from the top of the separator and returns to the suction of the final stage compressor. The liquid leaves this separator at 35°F and enters a second separator at 235 p.s.i.g. The vent vapor returns to suction of the second stage compression. This separator is 104″ in diameter and 33′ in length, mounted in a horizontal position and serves as CO_2 liquid storage, the temperature being -10° F. From the storage vessel the liquid CO_2 is float-controlled into the 3′ by 8′ vertical final flash drum which is constructed of stainless steel, having a normal working pressure of 165 p.s.i.g. Flash vapors from this vessel return to the suction of the second stage compression, and the liquid at minus 40°F is piped to the dry ice presses.

Compressors

The CO_2 gas received from the extraction plant and recycled from the dry ice plant is handled by two Clark MA-8 compressors. The final design of the plant was adjusted to a dry ice output based on 100% utilization of the available horsepower; that is, 600 horsepower. The jacket-water of these compressors is cooled by three Industrial Engineers radiator units having a total water circulation of 600 gallons per minute. The CO_2 gas handled in the compressors and the CO_2 gas vented from the presses as well as the quantity of dry ice is shown in the accompanying table.

CO_2 GAS TO COMPRESSORS

	1st Stage		2nd Stage		3rd Stage	
	Lbs./Hr.	% of Total	Lbs./Hr.	% of Total	Lbs./Hr.	% of Total
Make-up Stream from Extraction Plant	5.480	60.89	5.480	45.31	5.480	24.94
CO_2 Gas from Ice Presses via Surge Tank	3,520*	39.11	3.520*	29.10	3.520*	16.02
CO_2 Gas Vent from Liquid CO_2 Storage Tank			1.985	16.41	1,985	9.03
Gas Vent from 150# W.P. Flash Drum			1,110	9.18	1,110	5.05
CO_2 Gas Vent from 510# W.P. Final Accumulator					9,880	44.96
TOTAL	9,000	100.	12,095	100.	21 975	100.

Horsepower Per Day/Ton Dry Ice Per Day $= \frac{600}{56} = 10.7$

CO_2 TO AND FROM DRY ICE PRESSES

	Lbs./Hour	% of Total
Dry Ice from Presses	4,660	51.78
Vent Loss to Atmosphere Unaccounted Loss	820	9.11
Blowback from Presses to Compressors	3 520	39.11
	9,000	100.

*Same Gas

PERRY KILSBY INC.

STEEL TUBULAR PRODUCTS

3311 EAST SLAUSON AVENUE
LOS ANGELES 11, CALIFORNIA
•
JEFFERSON 9161

AN OPEN LETTER TO INDUSTRY IN THE WEST:

Recently we reorganized and expanded our steel tubular business and changed the name of our company from Kilsby-Harmon Inc. to PERRY KILSBY INC.

This expanded program was undertaken with the firm belief that we would be in a better position to serve industry. We have added man power all along the line in this reorganization. We have brought into our company some of the most able men with long records of association with the steel tubular business.

We will warehouse stocks of practically every type of steel tubing in most alloys, carbon, and stainless, and, as distributors for Shelby Seamless Tubing, a product of National Tube Company, we will maintain warehouse stock and accept orders for direct mill shipment.

The policy of our company is to offer a consistent sales and service operation, and, because we have confidence in the West and know that industrial growth is the foundation of economic strength, we shall base our business operation on making the best possible effort to serve you well.

You know now that your tubular steel problems will receive prompt and expert attention. And you can call upon us any time without obligation.

Sincerely,

PERRY KILSBY INC.

Perry Kilsby

Perry Kilsby, Pres.

CARBON • ALLOY • STAINLESS

SAN FRANCISCO • 1201 RUSS BUILDING • GARFIELD 1-0955
SEATTLE, WASHINGTON • 1516 SECOND AVENUE • SENECA 0054

Dry Ice Press

These presses are three in number, type 250 ton Baldwin Southwark, each capable of making 18 to 20 tons of dry ice per day. These presses are individually operated by electric motor driven hydraulic pumps, there being two hydraulic systems, one of which raises and lowers the platen, and the other raises and lowers the compressor plunger and boosts the pressure being applied to the plunger during the compression of the dry ice cake in the pressure range of 2200 to 2500 p.s.i.g. During the operation of the press, liquid initially enters the press where flashing occurs and the flash vapor is vented from the press chamber at approximately 80 p.s.i.g. which is just above the triple point.

After the press chamber has been filled with the required amount of CO_2 liquid, the liquid feed is shut off and flashing continues. This requires approximately two minutes. This venting continues for another minute, during which the vent control valve is opened wide and the pressure in the press chamber decreases to around 40 p.s.i.g. During these two periods, the gas vented from the press goes directly to the interchanger on the liquid stream between the high stage liquid CO_2 accumulator and the first stage flash drum. Here the temperature of the vented gas is raised from -80°F to 0°F and then goes to the CO_2 vapor surge drum. The gas from this chamber goes to the suction of the first stage compressor. A flow controller is used to prevent the full surge of the vent volume from entering the compressor.

At the close of this second period, venting continues through a second valve for one and one-half minutes directly to the suction of the first stage compressor until the pressure in the press chamber is approximately 20 pounds. The remaining vapor in the chamber is then manually vented to air.

At this time the CO_2 in the press chamber is in the form of a snow and is ready to be compressed into the cake. This is accomplished by lowering the compression plunger and applying hydraulic pressure of 2200 to 2500 pounds on the plunger. This compresses the snow into a cake having the approximate dimensions of 20″ x 20″ x 10″ and weighing approximately 240 pounds. The cake is now ready to be ejected from the press chamber. This is accomplished by lowering the platen, the cake following the platen out of the press chamber. When the platen reaches its lower position the dry ice cake is manually pushed onto a power driven roller conveyor. The platen is then raised, the plunger returned to its normal position, and the operation repeated. The total elapsed time requires about seven minutes.

Sawing and Wrapping

After leaving the press, the dry ice cake travels to a band saw where the cake is cut vertically into two equal portions; the two halves then continue to the end of the conveyor, where an automatically controlled device pushes the two portions onto another conveyor at right angles. Here it passes through another band saw, where the cake is cut at right angles to the first cut, making four cakes of equal size with approximate dimensions of 10″ x 10″ x 10″. These cakes then proceed on the conveyor to the wrapping table where they are wrapped in a heavy manila bag, tape-sealed, and weighed on an automatic scale. The wrapped cake then is placed on another power driven conveyor for direct loading into the dry ice cars.

Car Loading

In order to dispose of the dry ice product, a spur track of approximately two miles in length was laid from the Santa Maria Valley Railroad tracks from a position north of the plant and extending into the dry ice plant site adjacent to the building. A spur track also was installed at the same time to provide rail shipments of petroleum products processed in the Santa Maria Valley Absorption Plant.

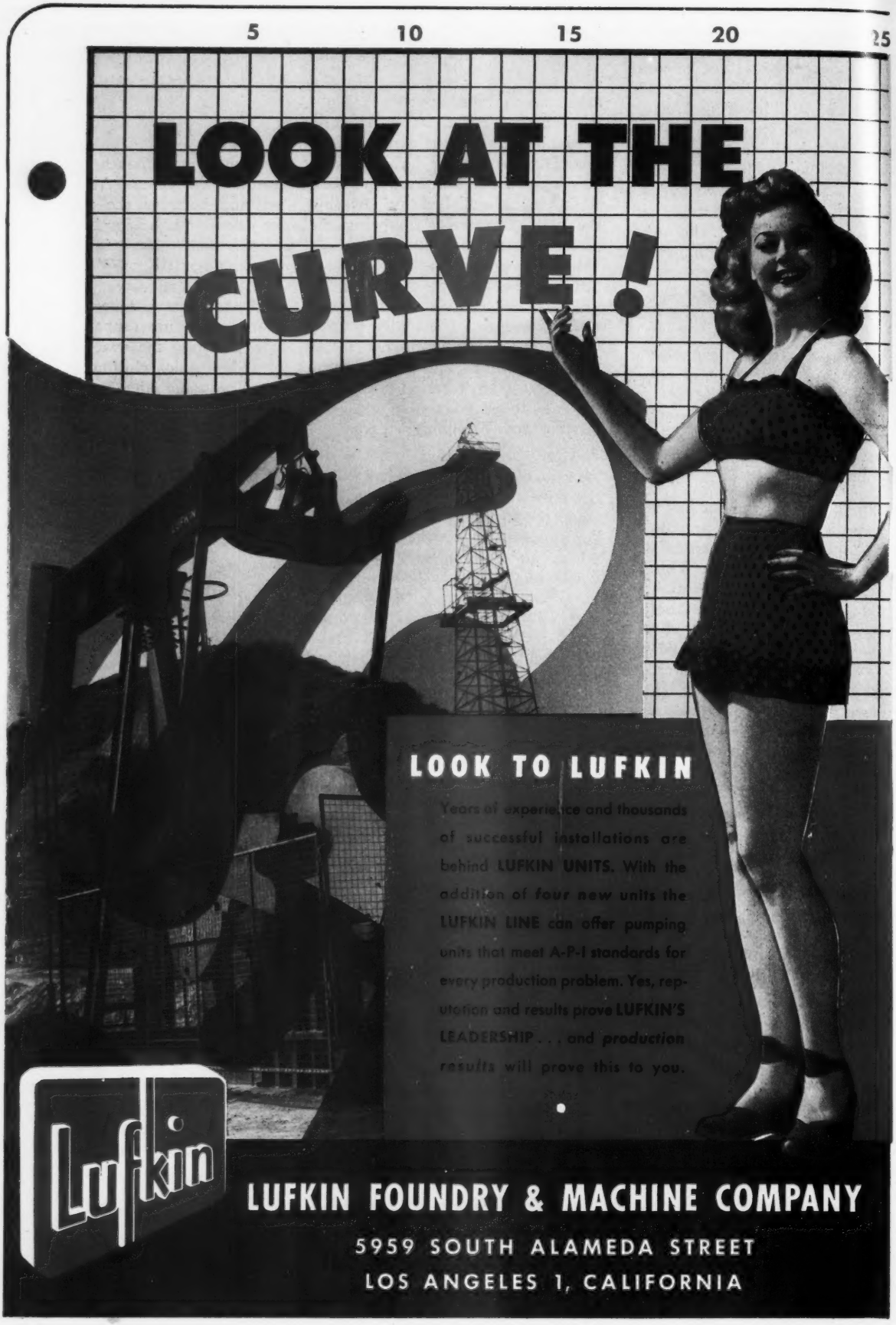
Specially constructed dry ice cars are spotted at the loading site by the Santa Maria Valley Railroad. These cars are heavily insulated and are somewhat similar to the standard refrigerator car. Dry ice in the packaged form is loaded into the cars, placing them seven blocks wide, thirty-three blocks long, and five blocks high, with a total of 1155 cakes per car. These cakes must be positioned to avoid any movement during shipment, as such movement has a tendency to fracture the cakes. Any space remaining between the rows of dry ice cakes and the car body is filled with sawed slabs of dry ice cut from regular 10″ x 10″ x 10″ cakes. Additional slabs are placed on top of the top row of cakes, all of these slabs being unwrapped. In addition to filling the spaces, the slabs provide a quick chilling of the car; thus reducing the loss from the wrapped cakes during transit. Specially built dry ice blankets are placed on top of the loaded ice to further reduce the loss during shipment. The net loaded weight of these cars is approximately 69,000 pounds.

Dry Ice Storage

A dry ice storage bin has been provided adjacent to the scale for the storage of dry ice manufactured during the period no cars are immediately available. This bin is approximately thirty feet long, ten feet wide, and five feet deep, projecting approximately three feet above the floor line. The outer walls and the bottom of this bin are insulated with 12″ of insulation. Two vertical partitions which divide the bin into three equal sections are ten inches thick, eight inches of which is insulation. The entire bin is sealed with wood and heavy tar paper and then covered with heavy galvanized iron. When in use the dry ice cakes are brought into position for unloading into the bin by placing them on the belt conveyor. This belt conveyor can be reversed for unloading the bin. After the storage has been filled, the dry ice blankets are placed on top of the ice to reduce its evaporation loss.

Truck Loading Facilities

A truck loading dock has been provided, but to date no shipments by truck have been made. It is expected, however, that with increased demand for dry ice from the plant some shipments will be made by truck.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LOOK AT THE CURVE!
LOOK TO LUFKIN
Years of experience and thousands of successful installations are behind LUFKIN UNITS. With the addition of four new units the LUFKIN LINE can offer pumping units that meet A-P-I standards for every production problem. Yes, reputation and results prove LUFKIN'S LEADERSHIP . . . and production results will prove this to you.
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LUFKIN FOUNDRY & MACHINE COMPANY
5959 SOUTH ALAMEDA STREET
LOS ANGELES 1, CALIFORNIA

With Drilling Contractors

Union Oil is using one rig capable of reaching 6000 ft. and a new National 75 of 700 horsepower, which can drill to 10,000 ft. in its wildcatting campaign in the state of Washington. The equipment is owned by the Fillmore Drilling Corporation of Bakersfield, whose M. I. (Tiny) Fillmore has been on the job since inception of Union Oil's program in Washington. The company drilled its first exploratory hole in the early spring of 1947. To date a total of nine holes have been sunk in the hunt for new oil. A number of others are already planned.

Contractors hampered by shortages of tubular goods and other material made from steel may find encouragement in a report recently made by the American Iron and Steel Institute. According to the institute, the steel industry shipped 3,125,000 tons of steel to the oil and gas industry in the first nine months of 1948. During this period, oil and gas showed the greatest increase in steel receipts of any industry, which was 38 per cent over the 1947 figure. A further increase during 1949 may bring much needed pipe and casing to the California petroleum industry.

Brookline Oil Company has entered into a contract with Atlantic Oil Company for the drilling of a program of six wells on the harbor lease at Long Beach.

Fred Manning, head of the Coastal Drilling Company in Los Angeles, spent Christmas in Denver, the old home town. Manning's contract drilling activities extend over the California and Rocky Mountain areas. He also is the owner of extensive producing properties.

The California chapter of the American Association of Oilwell Drilling Contractors has elected state officers for the ensuing year.

Ed J. Simonis of Santa Maria Drilling Company was named chairman. M. H. (Curly) Stansbury of Stansbury, Inc., was appointed vice chairman. Lee Daniels of Loffland Bros. is the new chapter secretary, succeeding Frank Jones, who resigned to join the Stansbury organization in Bakersfield.

Melo & Son Oil Well Service Company has contract from South Belridge Oil Company calling for the redrilling of 24 wells on Sec. 11-29s-21e in the South Belridge area.

E. H. Christian Drilling Company has the contract to drill Eagle Oil & Refining Company's Eagle Oil No. 1 at Newhall. George Terry will drill on contract the Miller No. 1, sponsored at Newhall by L. M. Lockhart.

E. J. Simonis
(New Chairman, Calif. Chapt. AAODC)

K. L. Kellogg & Sons, prominent California contractor, has spudded in General Petroleum's State No. 14-6 exploratory hole northwest of the town of Holbrook in Arizona. Drill site is near the Petrified Forest National Monument just west of the famous Painted Desert. Kellogg was the driller of Hancock Oil's discovery well at Gosford in Kern County, California.

Drilling of Harry Long's Lowe No. 51-27 well at northeast Raisin City is in charge of Dunlap & Graham.

Two new wells in the White Rock sector of the Russell Ranch field were drilled under contract by Camay Drilling Company. The new producers are Quality A No. 53-31 and F. R. Anderson No. 18-32. Camay has several other contract jobs under way in the field.

Shepard-Robertson, Inc., has set casing at a point above 4045 ft. in California Exploration's Porter No. 3 at West Edison.

Macson Oil's Bloemer No. 2 in the Edison field has been completed by Brown Drilling Company at a total depth of 3807 ft. Flow is more than 500 barrels daily.

Rocky Mountain Drilling Company has completed Standard's Frew No. 1-6, a southwest extension of the Aliso Canyon field. The contractor currently is drilling Standard's No. 1-3 in the field proper.

Severns Drilling Company has reached critical depths with Union Oil's Union del Amo No. 1 in the Dominguez field.

"Now I can enjoy football
...without taking rig worries to the game with me."

"Since standardizing on Reed Rock Bits, I can go to the game knowing that I have on my drill string the safest and most dependable rock bits made.

"They can be depended upon to drill straight, full-gauge hole under all conditions. With ten bits to choose from, my drillers get the benefit of Reed design regardless of the formation.

"Yes, I have less trouble at the rig since standardizing on Reed Rock Bits and I can really enjoy the football games."

BE SAFE WITH REED

REED ROCK BITS

Reed ROLLER BIT COMPANY

HOUSTON 1, TEXAS

Personalities IN THE NEWS

Rager Elected Vice Pres. of Oil Well Supply

Ralph W. Rager was elected vice president of Oil Well Supply Company, U. S. Steel subsidiary, and Erwin P. Kraatz was named comptroller in executive staff promotions announced recently by Fred F. Murray, president.

Ralph W. Rager

In his new post, Mr. Rager, who has been comptroller since October, 1944, will serve as administrative assistant to the president.

A graduate of Southern Methodist University in 1929 with a degree of Bachelor of Science in Commerce, Mr. Rager joined "Oilwell" as an accountant in April, 1936. He was made general accountant in January, 1938 and was named assistant comptroller in June of 1941. During the late war, he was also in charge of manufacturing accounting for the company's Eastern plants.

Mr. Rager is a director of the Dallas Chapter of the National Association of Cost Accountants, vice president of the Dallas Chapter of the Comptroller's Institute of America, and a certified public accountant. He has been a resident of Dallas since 1910 and is a graduate of North Dallas High School.

Mr. Kraatz has been senior assistant comptroller since October 1, 1948. A native Texan, he became connected with Oil Well Supply Company in the accounting department after his graduation from the University of Texas in June 1937 with a Bachelor of Business Administration degree. In December, 1940, he was made general accounting supervisor. In June, 1942, he entered the Navy as an ensign in cost inspection, and was separated in February, 1946 as a lieutenant commander in charge of all cost inspection in the Mobile, Ala. area, receiving a commendation from the Secretary of Navy for professional services rendered.

Mr. Kraatz returned to Oil Well in February, 1946, as assistant to comptroller in Dallas, and in June, 1947 was transferred to Oil City, Pa., as assistant comptroller in charge of accounting for the company's Eastern plants and export office.

He is a member of the National Association of Cost Accountants.

The officers and directors of Standard Oil of California were hosts to a large assemblage of civic and business leaders at a luncheon in the Los Angeles Biltmore Hotel. Chairman of the Board H. D. Collier made a short address calling attention to the tremendous growth, progress and prosperity of Los Angeles, which was responded to by Mayor Bowron. Members of the Standard Oil board of directors present at the meeting, in addition to Chairman Collier and President T. S. Petersen, were Hillyer Brown, F. S. Bryant, A. N. Kemp, Gage Lund, Atholl McBean, R. W. Miller, Paul Pigott and R. C. Stoner.

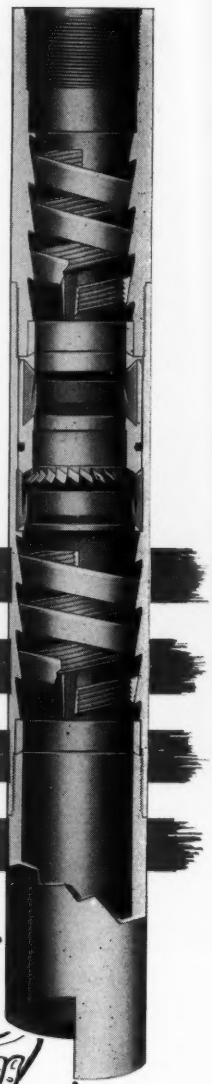
Newfarmer Succeeds Dr. Edwards

Guy Edwards, Exploration Manager for Shell Oil Company, Incorporated on the Pacific Coast, will retire January 1, 1949 after nearly twenty-five years of service with the Company.

Leo R. Newfarmer

Dr. Edwards graduated from the University of Wisconsin in 1912 with a degree in Mining Geology, later obtaining his PhD. at the University of California, in 1923. He started with Shell in 1924 as a geologist in the Los Angeles Office, and has been closely associated with the Company during a most vital period of its growth and success. In 1941 he was made Manager of the Geological Department, and in 1944 was appointed to his present position of Exploration Manager.

Leo R. Newfarmer, formerly Exploration Manager in the Houston area will replace Dr. Edwards. He attended the University of California, graduating in 1933 with a degree in Economic Geology. His career with Shell began in 1936 as an Assistant Geologist in San Anton-



EASY FISH ENGAGEMENT

FULL NON-CRUSHING "GRAPPLE GRIP"

INSTANT RIGHT-TORQUE RELEASE WHEN READY

FULL TIME, HIGH-PRESSURE CIRCULATION

HERE'S A TOOL that gives you every advantage for quick recovery of fish to be externally engaged. Without adjustment it catches drill pipe—coupling *or* tool joint, whichever is up! And not only grips the fish in a patented non-crushing "grapple grip" that tightens as pull increases, but this Bowen Releasing and Circulating Overshot automatically mills and conditions jagged ends of the fish to permit full pack-off for high pressure circulation through the fish. A Bowen Releasing and Circulating Overshot is your best insurance against excessive lost time in the event of a twist-off—have one handy on your next well!

HERE'S HOW IT WORKS

TO ENGAGE THE FISH you need only connect the Bowen Overshot to the fishing string and run-in to the top of the fish. At this point, rotate right and let down until the fish enters the Overshot. For jagged ends of pipe, rotate slowly to the right as you gradually lower the fishing string. This allows the cutters to mill the jagged ends of the fish for full positive engagement and better seal when circulating. Once the Overshot is settled securely over the fish, neutralize the torque and pull up on the fishing string.
TO RELEASE FROM THE FISH drop the weight of the fishing string heavily against the Overshot. Then at the same time lift and rotate the fishing string to the right. This expands the spiralling grapple and permits easy pull-away from the fish.
TO CIRCULATE AND ROTATE when the fish does not come free on a straight pull, start circulation and while maintaining an upward pull, rotate *violently* as much as the fishing string will stand. The Bowen Releasing and Circulating Overshot is ruggedly built to withstand the toughest fishing jobs!

AND HERE'S THE REASON WHY

When a Bowen Releasing and Circulating Overshot is rotated to the right and lowered over the fish, drag of the fish against the bore of the grapple causes it to unwind and expand sufficiently to allow the fish to enter. As upward pull is exerted, the spiralling grapple is contracted by the tapers in the bowl to wedge and set the deep cut wickers about the entire circumference of the fish. The pipe grapple or the tool joint grapple grips firmly and evenly over a large area of the fish in much the same manner that the "Chinese Handcuff," illustrated at right, tightens when pull is exerted. As pull is increased, the grapple tightens about the fish and the greater the pull, the tighter the grip *without distortion* to the fish!

The Bowen "Grapple Grip" Principle.

MORE "DOGHOUSE DATA" WILL APPEAR REGULARLY—WATCH FOR IT OR CONTACT YOUR S. R. BOWEN REPRESENTATIVE

BOWEN FISHING TOOL COMPANY

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io, and in 1946 he was promoted to Exploration Manager, Houston.

Cushing Advanced by National Supply

W. T. Cushing, Jr. has been appointed division sales manager of a new division sales department just organized at Casper, Wyoming by The National Supply Company to integrate and expand operations in the Northwest area of the United States and Western Canada.

W. T. Cushing, Jr.

Mr. Cushing has been Northwestern division engineer for the company at Casper since August of last year.

New members of the staff at Casper are R. D. Stottlemyer, division engineer, formerly of the plant products division in Houston, Texas; and K. L. Thompson, who is being transferred from the company's purchasing department in Toledo, Ohio.

The Kaiser Company has announced the appointment of George B. McMeans as general superintendent of the company's Fontana steel plant. He succeeds C. H. Lenhart, who recently resigned.

W. P. Larkin is Bakersfield representative for McCarthy Oil & Gas Corporation of Houston. The company has entered California with a program of development at Gould Hills.

T. R. Pierce has been advanced to the post of Superintendent of Transportation for the General Petroleum Corporation's installations at Taft, California, it was announced at the company's home office in Los Angeles by W. B. Pyles, Transportation Department Manager.

Pierce will supervise the operation of over two hundred pieces of mobile equipment which are headquartered at Taft as well as the extensive maintenance shops which are located there. Besides being responsible for the transportation of all company personnel, equipment and supplies, the Transportation Department also builds roads to oil well sites, levels sites for rigs and tanks, digs sump holes, and transports crude oil from the well when no pipe line facilities are available.

A native of Council Bluff, Iowa, Pierce joined the General Petroleum Corporation in March, 1924 as a teamster at Taft. Except for one five-year period when he was assigned to General Petroleum Vernon Plant, he has been located continuously at Taft. Pierce has been a Transportation Foreman since November, 1938.

In his new post he replaces R. S. Hartman who has been transferred to Vernon, California where he will serve as co-Superintendent of Transportation.

Charles S. Garvin has been named retail manager for Shell Oil Company, according to an announcement by J. G. Jordan, marketing vice president at San Francisco. Garvin will head Shell's service station sales on the Pacific Coast, with headquarters in the Bay City.

Howard G. Vesper, president of the California Research Corporation, a California Standard subsidiary, spoke on "Trends in Research" at the meeting of the junior section, Pacific petroleum chapter, AIME, at the Rio Hondo Country Club. Vesper is a graduate of the California Institute of Technology. He has been associated with Standard since 1922.

Bounds New Staff Engineer at Pabco

Robert E. Bounds, well known in engineering circles, has recently been appointed Staff Engineer with the Insulations Division of The Paraffine Companies, Inc. His new headquarters will be at Pabco's home office in San Francisco.

Robert E. Bounds

Bounds, formerly an engineer in Los Angeles with The Plant Rubber and Asbestos Works, (a former subsidiary of Pabco and now merged with the parent company) will devote himself to engineering plans and projects entailing Pabco's newest Building Material—Corrugated Asbestos Siding and Accessories.

This material is now being manufactured at Pabco's new Asbestos-Cement Products Plant in Redwood City, California, the only factory of its kind in the West.

In his new capacity, Bounds will work closely with the industrial engineers and Pabco Engineering Erection Units throughout the West. He will place at their disposal his engineering counsel and experience with respect to all engineering or erection questions involving Pabco Corrugated Asbestos Sheets and Accessories.

10 GOOD REASONS WHY OPERATORS PREFER

McCullough
GUN PERFORATOR SERVICE

1. **MEETS EVERY CONDITION.** Guns fired either electrically or mechanically: guns run on cable, sand line, drill pipe, tubing, or on piano-wire measuring line in extremely high-pressure wells.
2. **SIMULTANEOUS FIRING** under all conditions gives exact spacing of shots, perfect perforation pattern, and saves down-the-hole time.
3. **ACCURATE DEPTH MEASUREMENTS** put the shots right where you order them.
4. **MAXIMUM PENETRATION** of bullets into the formation, as proved repeatedly in competitive field tests.
5. **GUNS TO FIT EVERY CONDITION.** McCullough employs more than 30 different types and sizes of guns.
6. **ALL SIZES OF BULLETS** from $\frac{1}{10}$" dia. up to $\frac{3}{4}$" dia., to fit every possible need.
7. **BURRLESS BULLETS,** giving a completely burr-free hole, eliminating casing scraping, with *no* sacrifice of penetration.
8. **NO LOST TIME.** McCullough's simpler, lighter equipment cuts setting-up and moving-out time, speeds up every job.
9. **EXPERIENCED MEN.** With years of experience behind them, thoroughly-trained McCullough gun-perforating crews do their jobs quickly, efficiently, safely.

These Are Some of the Reasons Behind the Proven Fact That

McCullough

PUTS THE SHOTS WHERE THEY [illegible]UNT!

10 This is a section of a McCullough **90-SHOT GUN** perforating a 15-foot section with 6 holes to the foot, at one run.

McCullough TOOL COMPANY

5820 South Alameda St., Los Angeles 11, California
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NEW MEXICO: Hobbs
KANSAS: Ulysses
CALIFORNIA: Los Angeles, Avenal, Bakersfield, Ventura
MONTANA: Cut Bank
LOUISIANA: Houma, Lake Charles, New Iberia, Shreveport
WYOMING: Casper

EXPORT OFFICE: 30 Rockefeller Plaza, New York 20, N. Y.

Cameron Heads Superweld Corp.

Lee Cameron, one of the best known aviation executives on the Pacific Coast, has been elected president and general manager of Superweld Corp., specialists in the electric copper brazing of steel, localized heat silver brazing, and bright annealing. Walter T. Wells, who was formerly president and general manager, has been named chairman of the board. He is also chairman of the board of Lane-Wells Co., an oil-tool manufacturing concern. Mr. Cameron comes to his new post with a broad background of experience, having been formerly secretary and treasurer of Interstate Aircraft & Engineering Corp. with which he was affiliated from 1938 to 1944. Previous to that he was treasurer of Vultee Aircraft Corporation and has held other prominent executive posts.

Lee Cameron

S. S. Webster, Jr., C.P.A. of Peat, Marwick, Mitchell Co., certified public accountants, has been named secretary. Robert E. Jones, vice-president, was also elected treasurer. In addition to Wells and Jones, Harold C. Hill of General Electric Co., Los Angeles and William M. West, of West & Co., specialists in builders hardware, are directors, and it is expected that Mr. Cameron will be named a director at the next meeting.

General expansion of the company's facilities to take care of the ever increasing volume of business is under way. The company, with a capitalization of $500,000 was organized on May 1, 1948 and purchased the business and all furnaces and brazing equipment of Warner Welded Products. Superweld's plant is located at 708 Hawthorne St., Glendale 4, California, corner of San Fernando Road.

Sale of Chateau des Fleurs, famed mansion at Lake Arrowhead, to George W. Bryant of Huntington Park, president of Bryant Oil Company, has been announced. The 19-room house was built in 1934 at a cost of $250,000 and used materials from ancient French castles.

J. L. Martin, vice president, and Felix Chappellet, assistant to the executive vice president of General Petroleum Corporation, were honored at a luncheon for their long service with the company. Martin just completed 35 years and Chappellet 25 years with General Petroleum.

J. E. Hobson, executive director of Stanford Research Institute announces that on January 5 the institute will stage the first California demonstration of the Poulter Seismic Method for geophysical exploration. The demonstration, which will be held near Bakersfield, will be sponsored by the Institute of Inventive Research of San Antonio, which has supported the Stanford research work and is now making the benefits available to all.

Los Angeles executives of Shell Oil Company joined other officials and technical men of the organization from all over the world at the company's semi-annual research conference recently held at Alisal Guest Ranch near Solvang in Santa Ynez Valley. General J. H. (Jimmy) Doolittle, war hero and Shell Union Corporation vice president, was in attendance. Other top figures at the meeting, included F. S. Clulow, senior vice president; C. E. Davis, vice president of Shell Oil Manufacturers; H. H. Fraser, vice president of Interstate Lubricants Corporation; A. E. Lacomble, chairman of the board of Shell Union Oil Corporation; and A. J. Johnson, vice president of Shell Development Company. Also on hand for the confab were W. P. Gage, vice president, Shell Chemical Company, and John Gurnow, Shell Oil Company executive from San Francisco, director of the meeting.

Requirements of the Armed Forces Petroleum Purchasing Agency during the first half of 1949 have been set at about 14,000,000 barrels of aviation gasoline. Officials have indicated that they have offers to cover the entire 3,300,000 barrels of 115-145 octane gasoline. They are, however, short 1,300,000 barrels of their needs of 9,600,000 barrels of 100-130 octane motor fuel.

Lund Elected Vice Pres. of Standard

Election of Gage Lund as a vice president of Standard Oil Company of California was announced recently by T. S. Petersen, President.

Gage Lund

Lund, who was made a director of Standard in January, 1948, also is chairman of the board of the California Company and the Standard Oil Company of Texas, both wholly-owned subsidiaries of Standard of California operating in the Rocky Mountains, and of the Richmond Exploration Company, Standard's subsidiary operating in Venezuela.

He joined Standard as a geolo-

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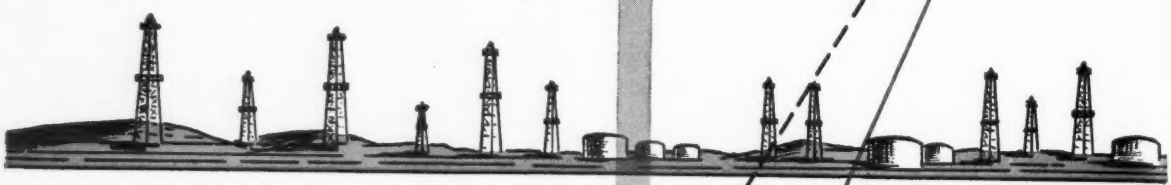
CONSISTENTLY DEPENDABLE



QUALITY The quality of Tretolite Dehydrating Reagents is maintained at a consistently high level of excellence by time-proven methods of manufacture, continuous tests and careful inspection.
You can depend on Tretolite's uniform effectiveness.

SERVICE Tretolite Service is geared to the needs of oil producers, everywhere. Tretolite Service Engineers are located in every field. *When you call Tretolite, you get service.*

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gist in 1925, a year after his graduation from Stanford University.

Paschall Advanced at H. C. Smith

Appointment of Hearn J. Paschall as the exclusive representative for the H. C. Smith Oil Tool Co. throughout South America has been announced by Ronald C. Smith, general sales manager. The appointment is effective January 1, 1949. Mr. Paschall will make his headquarters in Caracas, Venezuela. He has been associated with the H. C. Smith Oil Tool Co. for the past eleven years and during the past year was the company's division manager for Mississippi. Two years ago, Mr. Paschall made an extensive tour of the various oil fields throughout the Middle East for his company. Mr. Paschall is a member of the New York Chapter of the Nomads.

Thomas W. Simmons, president of Bolsa Chica Oil Corporation, has been reelected head of Hollywood Turf Club for the ensuing year. Another officer is C. M. Rood, secretary. Rood is a prominent oil producer in the Huntington Beach field.

Arriving by plane at Los Angeles, Nelson A. Rockefeller, millionaire oil scion and ex-assistant secretary of state, expressed opinion that only brotherhood can wipe out the "misunderstanding" created between nations. He was the principal speaker at a large dinner gathering at the Los Angeles Ambassador Hotel.

John J. Synon, former public relations expert for Western Oil and Gas Association at Los Angeles, has joined Chris Lykke & Associates in San Francisco.

The American Chemical Society announces that Dr. Ernest H. Volwiler of North Chicago, Illinois, has been chosen president for 1950. New directors are Ralph W. Bost of the University of North Carolina, and Dr. Henry Eyrings of the University of Utah. Professor Linus Pauling of the California Institute of Technology becomes president of the society January 1, 1949.

Rumors that Ed Pauley, president of Petrol Corporation, was in the market for the St. Louis Browns were heard at the recent major league baseball meeting in Chicago. Some reports indicated that only details of the deal remained to be worked out.

Edward M. Loftus, president of Loftus Land Company, announces the opening of new offices on south Carmenita Road in Norwalk. The company, whose principal interests are in the Santa Fe Springs area, previously maintained headquarters in Los Angeles. Loftus has been identified with several interesting drilling plays in various California sectors.

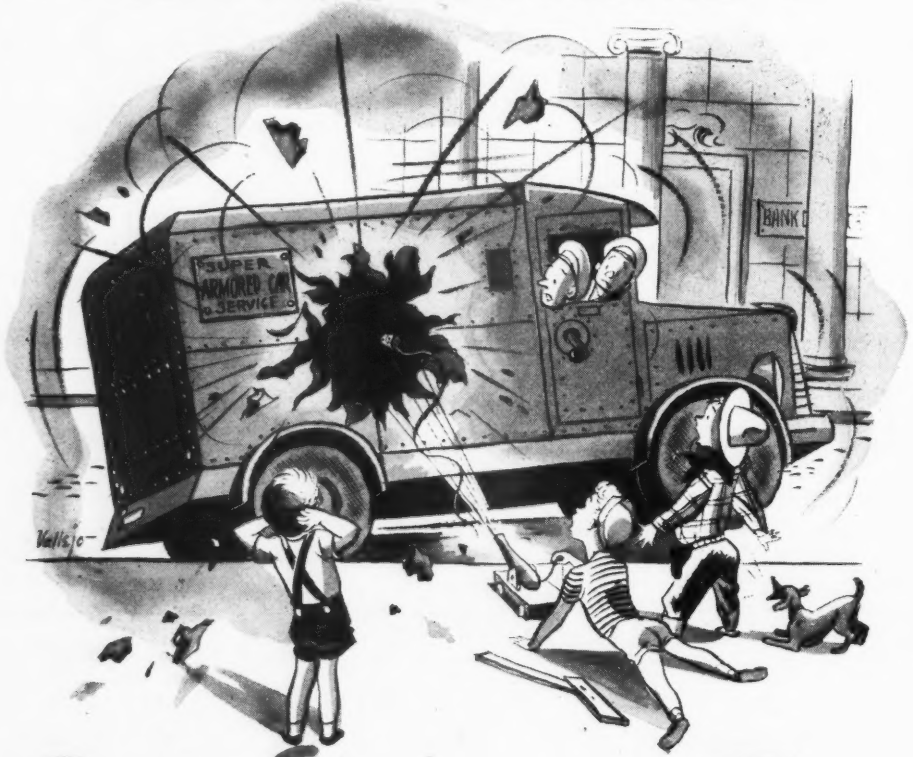
Claude L. Draper of Cheyenne, Wyoming, has been named vice chairman of the Federal Power Commission for 1949. Each year the commission appoints one of its members as vice chairman.

Schlittler Named Vice Pres. MacClatchie Mfg. Co.

In line with a general expansion program, H. F. Schlittler, one of the best known oil tool manufacturing executives in the United States, has been named vice president of MacClatchie Manufacturing Company, manufacturers of pump liners, pump valves, pump pistons, piston rods and other specialized production and drilling equipment, according to an announcement by J. Warren MacClatchie, president. Mr. Schlittler comes to his new post with a broad background of 19 years executive experience with leading oil tool manufacturing companies. For the past three years he was vice president of a leading California oil tool manufacturing company. Mr. Schlittler is a member of the Los Angeles Chapter of the Nomads. He will make his headquarters in the company's Compton, California plant.

Hood Construction Co. employees assemble two gates and a check valve before tying in Shell's gathering system at the Rosecrans-Athens field to Richfield's main line. Left to right: C. Casas, laborer; R. O. Hood, pipe fitter; R. E. Howard, welder; W. C. Penfield, operator; "Stud" Coffman, apprentice welder.

Steel Problems?



Call Jorgensen First

WHEN an unexpected steel problem pops up, Jorgensen can help you. Jorgensen carries a *complete* line of carbon, alloy, stainless, tool and specialty steels in plates, bars, structurals, tubing, etc. When you need steel or help with your steel problems . . . remember to *CALL JORGENSEN FIRST!*

EARLE M. JORGENSEN CO.
STEEL

LOS ANGELES	OAKLAND	SAN FRANCISCO	HOUSTON
10650 So. Alameda	1657 22nd St.	Ask Operator for	5311 Clinton Dr.
LUcas 0281	HIgate 4-2030	Enterprise 10942	Charter 4-1761

Field Development

PREPARED FROM CALIFORNIA OIL WORLD NEWS SERVICE

Los Angeles Basin

Newhall Play Still Widens

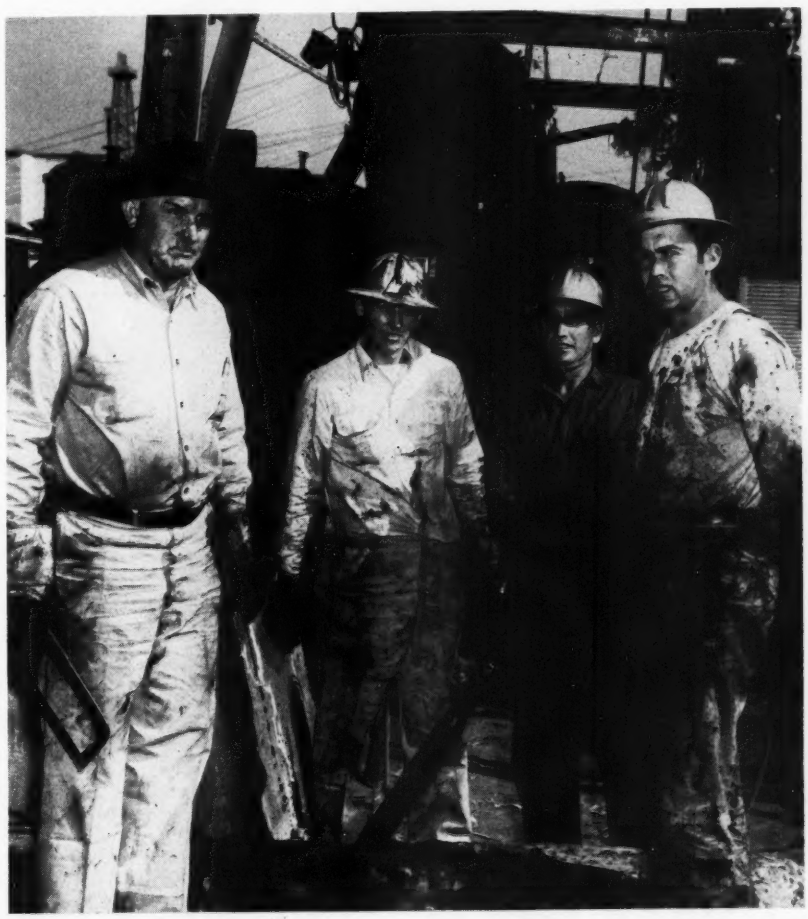
L. M. Lockhart has entered the Newhall development campaign by starting Miller No. 1 in Sec. 2-3n-16w near the corner of Hill and 8th street, some 1200 ft. southeast of R. W. Sherman's Newhall Comm. No. 3-1 well. Eagle Oil & Refining Company is ready to begin work on its Eagle Oil No. 1 test in Sec. 34-4n-16w, approximately 1000 ft. northwest of the discovery well. The company has under lease three parcels of the Chapple property. Rothschild Oil is preparing to drill Perkins No. 1, 330 ft. east and a similar distance south from the northwest corner of Lot 56, Tract 2703. This is about 5000 ft. south of the Sherman finder and 3000 ft. north of Anderson & Associates' abandoned Tomato Can No. 1 explorer. The company holds 160 acres in the area represented by scattered parcels. Another drilling job for the area soon will be undertaken by Universal Consolidated which holds more than 100 acres in the vicinity of the discovery. The Sherman field opener has been returned to production for a large yield of crude oil from the second zone. No. 2-1 in Sec. 2-3n-16w is starting. Bettymac Oil Company's Warren No. 1 in Sec. 1-3n-16w is drilling near 1800 ft. Oil sand was reported at 1400 ft. General Petroleum has commenced Castruccio No. 1 in Sec. 31-4n-15w.

Leffingwell Wildcat Idle

T. W. Branch's No. 1 prospect well in the Leffingwell area is reported at a depth of 8450 ft., but idle temporarily.

Long Beach Well Pumps

The R. W. Jerman, Inc., new well in Sec. 24-4s-12w on the northwest flank of Signal Hill presently pumps 460 barrels daily from a finishing depth of 10,429 ft. The well, located near Atlantic boulevard and Thirty-first street, is producing from the De Soto zone and is the first to try the deeper measures in the area. Oil sand was topped at 9730 ft. Known as Victory No. 1,



The L. E. Olinger well No. 19 at Wilmington, being serviced by Delaney Petroleum Corp. of Long Beach. Left to right: George Redburn, operator; Paul Rasmussen derrick; Roy Shelinbager, well puller; Bill Kirk, well puller.

A NEW RIG

FOR ROBERTS and LEE

Power Rig & Equipment Co., Inc., exclusive West Coast distributor for Wilson Manufacturing Co., Inc., of Wichita Falls, Texas, have furnished Roberts & Lee with this complete new power drilling rig. It utilizes the most modern equipment available for efficient, economical drilling.

THE SINGLE UNIT GIANT TORCAIR DRAWWORKS is the latest creation of Wilson Manufacturing Co., Inc. in unitized, portable drilling rigs—completely air operated to provide extreme flexibility—all controls centrally located in a Console positioned adjacent to but remote from the rig—air operated Wilson and Wichita "Air Tube" clutches—air operated spinning and breakout catheads—powered by a 260 H.P. GMC 6-71 Twin 6 cylinder diesel equipped with a Twin Disc torque converter—skid mounted in a single unit.

Power Rig furnished a 130' BENDER PORTABLE MAST, sub-bases and drill pipe racks with this equipment.

UNITIZED MUD PUMP ASSEMBLY—Engineered and developed by Power Rig & Equipment Co., Inc.—consists of a 7¼ x 14 Wilson-Snyder power pump driven by a GMC 6-71 Twin engine with a Twin Disc torque converter—chain driven with chains completely enclosed and running in an oil bath—skid mounted as a single unit—complies with California road codes.

All other major items of equipment were furnished by Power Rig & Equipment Co., Inc. with the exception of a few items purchased in the Bakersfield area.

POWER RIG & EQUIPMENT CO. **PRE** **INC.**

SALES • SERVICE

5141 ANAHEIM-TELEGRAPH ROAD LOS ANGELES 22, CALIF.

the well is in the townlot area and further drilling is understood to have the consideration of the larger independents, which currently are assembling leases. Jerman, called "Rocky" by his friends, is a pioneer in deep drilling at Signal Hill. He completed the first deep well in the field more than 10 years ago. It tapped the Lovelady pool and is still producing.

Castaic Try Digs

British-American Oil Producing and Humble Oil & Refining are drilling at 7200 ft. with their Wayside Honor Farm No. 1 in Sec. 1-4n-17w in the Castaic area, Los Angeles County.

San Bernardino Ventures Drill

Venturing for new oil in the Cajon area of San Bernardino County, Cajon Oil Company, Ltd., has reached below 2500 ft. with its Ray No. 2 in Sec. 36-3n-6w. Grayco Oil's Grayco No. 2 in Sec. 13-3s-8w is making hole ahead below 3450 ft. Fish evidently was not recovered. Chino Hills Oil's Chino Hills No. KB-4 in Sec. 31-2s-8w continues idle at 2056 ft.

Boyle Heights Drilling Okayed

Creation of a 250-acre oil district at Boyle Heights in Los Angeles was voted by the City Council with approval from the city's planning commission. Many hundreds of residents in the district were signers of a petition asking the council to pass the ordinance necessary to permit Boyle Royalties Company to drill a well at First and Lorena streets. Boyle Royalties was identified with a previous exploratory campaign in the district. Its community leases to date have taken in more than 5000 individual parcels. Favorable attitude of the neighborhood toward the project is regarded by members of the oil industry as attesting to the high standard of operations sponsored by the company in the district during the last two years.

Placerita Canyon Project Spudded In

B. B. Breckenridge has spudded and is drilling ahead in the shallower formations with his Atomic No. 2 in Sec. 36-4n-16w in the Placerita Canyon area, Los Angeles County. Crawford & Hiles is completing Aqueduct No. 1 in Sec. 6-3n-15w and has started work on No. 2. The former is finishing at a plugged depth of 1395 ft. Parbre Oil Corporation, meantime, is moving in for its Philbert Comm. No. 4-1 in Sec. 31-4n-15w. Standard has given the final touch to its Placerita No. 5 on Sec. 6-3n-15w for an unestimated yield from 1380 ft. No. 6 is rigging up. Indian Oil Company is beginning work on Placerita No. 2 in Sec. 31-4n-15w.

Orange County Explorers Start

Union Oil has staked two interesting wildcats in Orange County sectors. Placentia Comm. No. 1 will drill in Sec. 30-3s-9w, one mile north of the town of Placentia.

KEENAN PIPE & SUPPLY CO.

KEENAN supplies BYERS GENUINE WROUGHT IRON PIPE

TO FIGHT CORROSION

. . . by Salt Water

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Bulletin on Request!

KEENAN PIPE & SUPPLY CO.

PIPE • VALVES • FITTINGS • TOOLS — AND INDUSTRIAL SUPPLIES —

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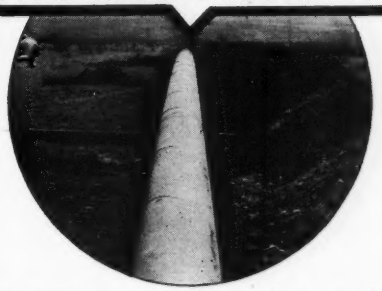
Branches: Bakersfield, Tucson

SLACK LOOPS ARE EASY WITH THIS STEEL PIPE



The flexibility of ARMCO Spiral Welded Steel Pipe permits all standard slack loops and there is no danger that the pipe will buckle or become unstable.

Other advantages include lengths up to 40 feet and a wide range of diameters and gages. With long lengths there are fewer joints to assemble, fewer sections to unload, haul and string. Beveled pipe ends make for faster, easier field welding. Write for prices and other information.

ARMCO DRAINAGE & METAL PRODUCTS, INC.

CALCO DIVISION

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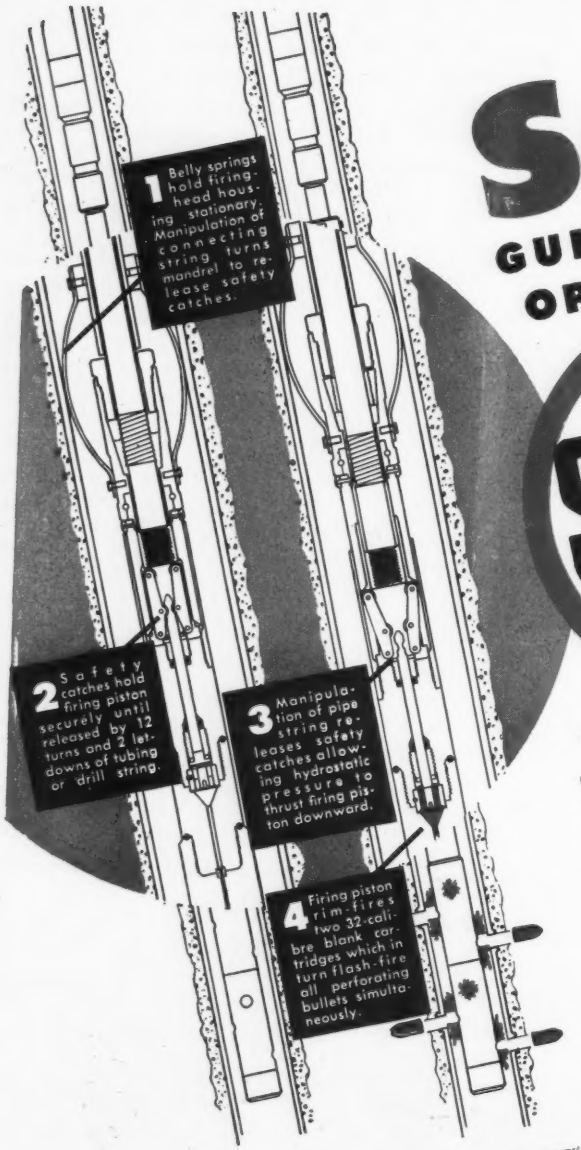
ARMCO WELDED STEEL PIPE

Safer GUN PERFORATING OPERATIONS with SHOOT-N-TEST


1 Belly springs hold firing-head housing stationary. Manipulation of connecting string turns mandrel to release safety catches.
2 Safety catches hold firing piston securely until released by 12 turns and 2 let-downs of tubing or drill string.
3 Manipulation of pipe string releases safety catches allowing hydrostatic pressure to thrust firing piston downward.
4 Firing piston rim fires two 32-calibre blank cartridges which in turn flash-fire all perforating bullets simultaneously.

The "SHOOT-N-TEST" Gun Perforator Firing-Head ready to fire.

The "SHOOT-N-TEST" Gun Perforator at the moment of fire.

THE JOHNSTON ALL PURPOSE GUN PERFORATOR

THE JOHNSTON "SHOOT-N-TEST" Gun Perforator provides complete safety in every phase of gun perforating operations—maintenance, transportation to and from well, rig-floor handling and running in the well. The "SHOOT-N-TEST" fires *only* when subjected to *both* in-the-hole hydrostatic pressure and precise top-hole manipulation of the tubing or drill string by the driller.

Many advanced features are embodied in the Johnston "SHOOT-N-TEST" Gun Perforator to make it the ideal choice for operators desiring the utmost safety and efficiency in perforating and formation testing equipment . . .

POSITIVE FIRE of all bullets is assured by the flash-hole design of the perforating gun bodies.

EXACT POSITIONING in zone to be perforated is determined by actual pipe-in-the-hole tally.

SELECTED NUMBER OF PERFORATIONS is determined by the number of 4, 5 or 6-shot perforating gun body sections attached to the firing-head.

A MINIMUM OF EXPENDABLE PARTS for each perforating job. No extra equipment other than the "SHOOT-N-TEST" Firing-Head, the Perforating Gun Body Sections and a minimum of reloading supplies is needed.

Write for new descriptive folder!

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Reyes No. 1 will prospect in Sec. 24-3s-9w, about three miles east of Fullerton and southeast of Brea. The company also is starting Sansinena No. 18 in Sec. 30-2s-10w at Whittier. Mineral Springs No. 3 in Sec. 25-2s-11w in the area is pumping a little water traced with oil from 4415 ft.

Aliso Canyon Test Completed

Standard of California's Frew No. 1-6 wildcat in Sec. 29-3n-16w in the Aliso Canyon area has been completed at 8758 ft. on the gas lift for 106 barrels of 20.7 gravity oil during an 8-hour period, along with 109,000 cubic ft. of gas. The 7-in. casing was cemented at 8580 ft.

Montebello Active Area

Century Oil Company has reached 2804 ft. with its Century-Repetto No. 18 in Sec. 6-2s-11w at East Montebello and is fishing drill collars, of which top is at 2300 ft. Rothschild Oil's Wheeler No. 6 in Sec. 2-2s-11w at West Montebello is testing, with hole bottomed at 4091 ft. Standard of California's Baldwin No. 135 is completing at a depth of 2730 ft. Casing is set at 2560 ft. The company's Emery No. 87 is making hole below 6550 ft.

San Fernando Wildcat Drills

On the old Panorama-Ranch near San Fernando, Universal Consolidated is drilling ahead at 1100 ft. in its No. 1 wildcat in Sec. 6-2n-15w, Los Angeles County. Under lease are about 1200 acres situated several hundred feet from the San Fernando reservoir. Drill site is approximately six miles southeast of the Aliso Canyon field.

Mojave Test On Calendar

George W. Marsh has staked location for well No. 1, an exploratory hole in Sec. 5-1n-6w, 35 miles east of Mojave. Location falls some 30 miles west of Barstow.

Puente Wildcat Drills Deeper

Richfield Oil's Vanderhoof No. 1 prospect job in Sec. 10-2s-10w near the town of Puente in Los Angeles County is continuing to make hole ahead below 1650 ft.

West Coyote Try Gives Up

Having drilled to a total depth of 5830 ft. without visible encouragement, Hathway Company has abandoned its La Mirada No. 1 in Sec. 10-3s-11w at West Coyote.

Mint Canyon Try Inactive

Drilling has come to a temporary halt at 2500 ft. in S. D. M. Oil Company's Orval No. 1 wildcat in Sec. 1-4n-15w at Mint Canyon, Los Angeles County

Athens-Rosecrans Projects Working

Shell Oil has a trio of wells at different stages of operations in the Athens-Rosecrans area. Union Poindexter No. 2 in Sec. 12-3s-14w is rigging to pump from 9150 ft. Howard Park Comm. No. 1-3 and No. 2-2 in the section are both rigging up. In Sec. 12-3s-14w, J. Paul Getty is drilling beyond the 8700-ft. mark in Howard Park Fee No. 2. Union Oil's Kaufman No. 1 in Sec. 20-3s-13w is making progress with the drill at 7100 ft.

Richfield Well Drills

In the Richfield field in Orange County, Arrowhead Oil Company is making steady progress with the drill at 3900 ft. in Bradford No. 11 on Sec. 32-3s-9w. Kraemer Oil Estate's Kraemer Fee No. 1-16 in Sec. 36-3s-9w is a location.

Tex Scarbrough has finished another shallow producer for Tejon Hills Oil Company at Tejon Hills. The No. 9 finished at 548 pumping 80 barrels daily.

Interior Secretary Krug has made known a list of 87 representatives of the oil industry appointed to membership of the National Petroleum Council for 1949. Among new members is J. S. Morse of the AA-ODC.

Drilling has not been exactly easy with Union Oil's Blochman No. 20 in the old Cat Canyon field. Thomas P. Pike Drilling Company, the contractor, at times found hard chert so tough to penetrate that a highly expensive diamond bit was necessarily employed to make hole.

In the Rosecrans Field, California Production Service crew working on the Herley Kelley well, Crawford No. 21. Left to right: S. E. Hawkins, well puller; L. C. Gilleland, operator; C. H. Letts, well puller; R. B. Osendorf, well puller.

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Monterey County Interest Widens

Texas Company has plans mapped out for additional drilling in the Peachtree Bow area in Monterey County. Exploratory work will be carried on by Bingaman No. 2 on Sec. 35-20s-11e. This is approximately 1200 ft. north of the No. 1 test, which was abandoned early in December at 3326 ft. Showings were found on the way down, but when put to trial failed to react commercially. In the Lonoak area of the county, the company is drilling at 2400 ft. with California Land & Cattle Company No. 1 wildcat on Sec. 15-19s-10e. Location falls 20 miles north of San Ardo and 15 miles east of Kings City and not a great distance from the Monterey-San Benito County line. In Salinas Valley, Texaco is coring beyond the 2700-ft. level with its Aurignac One No. 4 on Sec. 4-23s-10e. At San Ardo, Orradre No. F8-13 on Sec. 13-23s-10e is digging deeper at 1175 ft. No. F4-13 is a location on the section. The Jergins-North American combination has completed Orradre No. 84-12 on Sec. 12-23s-10e at San Ardo. The well pumped 213 barrels a day from 2085 ft. Orradre No. 116-12 on the section is testing water shut off with casing set on bottom at 1914 ft. Thre eand a half miles northwest of Texaco's Lombardi lease at San Ardo, Shell Oil is starting Dudley & Grimes No. 1 on Sec. 19-22s-10e. Chanslor-Canfield Midway, holder of a large spread of leases at San Ardo, is planning a drilling campaign there. The company's properties are made up of both proved and unproved ground. In the Bradley area, Barnsdall Oil has abandoned at 4141 ft. its P .W. & P. No. 1 on Sec. 29-23s-11e. It is starting Echenique No. on Sec. 35-21s-9e at San Ardo.

Yolo County Test Drills

Standard of California is drilling below 2600 ft. with its Hufford No. 1 gas test on Sec. 18-12n-1w, 7 miles north of Dunnigan Hills production in Yolo County. In the Suisun area of Solano County, the Standard banner flies over Honker Comm. No. 1 on Sec. 30-3n-1e, drilling at 6340 ft.

Los Alamos Try Staked

Seaboard Oil is building roads for a wildcat well on Sec. 12-7n-32w on property of Dr. Frank Barham at Los Alamos in Santa Barbara County. The ground in question is within the confines of the Rancho de Quati, which in 1944 was the scene of considerable attention resulting from the development of a little oil by Whittier Associates' Barham No. 2. Yield, however, was not of enough volume to induce further drilling. Seaboard regards the area as likely ground for commercial production as indicated by its current undertaking, which has been labeled Seaboard-Barham No. 4. It is about a quarter of a mile southeast of Barham No. 2.

Pleasant Creek Gas Well Flows

Shell Oil is completing its Unit No. 3-1 on Sec. 8-8n-1w in the Pleasant Creek area, Yolo County. The project, two and one-half miles northwest of Winters, flowed at the rate of 5,300,000 cubic ft. of gas daily on formation test from 2784 to 2820 ft. A half-in. choke was in use. Drill site is five miles west of the Winters gas field, opened up by Shell in February, 1946.

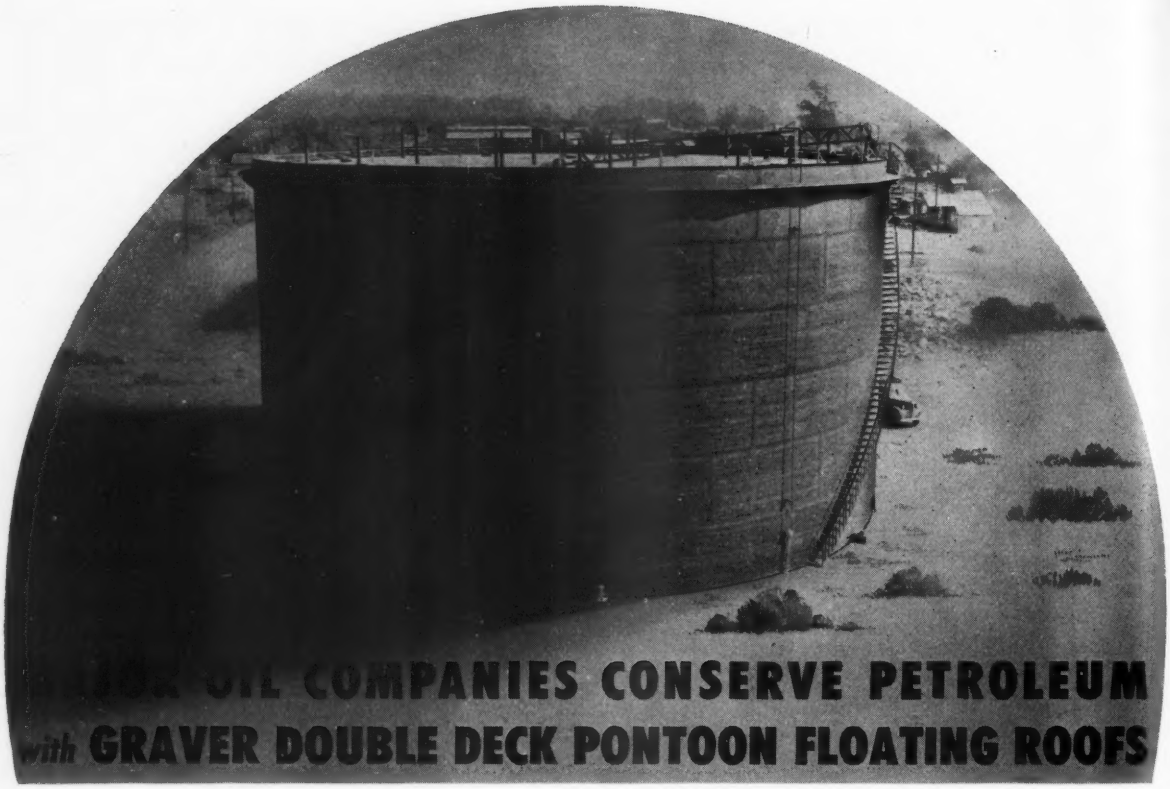
San Marcos Survey Due

Fred Manning & Associates is preparing to launch an expansive seismograph survey of the San Marcos area in Santa Barbara County, which will take in both the historic Murphy and Welch ranches, spreading over 45,000 acres. Manning recently drilled an unsuccessful test in the area. In the Santa Ynez area, Ohio Oil's Unit No. 1 on Sec. 1-5n-20w is drilling at 6025 ft.

Los Olivos Try Listed

On the calendar for early drilling is Union Oil's Dabney No. 1 on Sec. 7-7n-30w at Los Olivos in Santa Barbara County. Location falls on the Rancho La Laguana and is a mile northeast of a well put down to 5852 ft. some years ago by Hub Oil Company. The latter was credited with showings at several levels. Union's McCroskey No. 4 on

In the Lawndale field at General Petroleum's well, Powell No. 1, Hayes and Sprague contractors. W. F. McGlachlin, pipe racker; George Gilbert derrick; Art Warren, lead tong; R. H. Huebner, driller; J. W. Crump, cathead.



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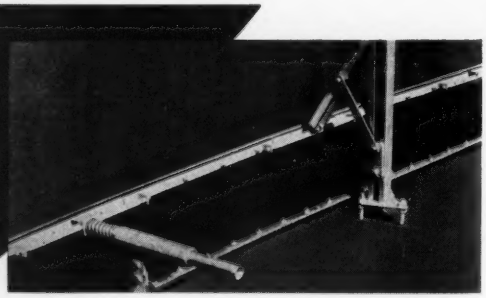

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Sec. 20-9n-32w at Olivera Canyon is redrilling at 4650 ft.

Ripon Test Scheduled

In the Ripon area of Stanislaus County, Tide Water Associated is commencing Philbrich No. 64-7 gas test on Sec. 7-3s-8e. It will drill about four miles northeast of the company's Overton No. 34-16. This earlier try was given up as a production failure at 4850 ft.

Fillmore Try Begins

Jergins Oil is starting work on L. & G. No. 1 wildcat on Sec. 23-4n-19w in the Fillmore area in Ventura County.

Parkfield Try Fishes

When drilling at 4996 ft., Slayton Drilling Company's Colgrove-Taylor No. 88 on Sec. 15-23s-14e in the Parkfield area of Monterey County came to a halt due to a twist off Top of fish is placed at 4688 ft.

Summerland Wildcat Digs

At Summerland in Santa Barbara County, Loon Point Oil Company is making hole ahead at 2450 ft. in its Bailard No. 1 on Sec. 23-4n-26w. Harold E. Purdum's Kilb No. 1 is a location on Sec. 21-4n-26w.

Casmalia Goleta Job Fishes Pipe

Drill pipe is the object of a fishing job in Honolulu Oil's Honolulu-Signal-Macco-State No. 309-3 on Sec. 19-4n-28w at Goleta in Santa Barbara County. The hole is at a depth of 6650 ft.

Los Alamos Try Tested

Formation trial was evidently inconclusive on Amerada Petroleum's Tognazzini No. 1 on Sec. 14-8n-33w in the Los Alamos area. The project has been carried to a present depth of 8618 ft. Grading ground is the present status of Standard's Magenheimer No. 2-1 on Sec. 5-8n-32w.

Try Bails

A. E. Bell Corporation's Hansen No. 2 at Casmalia in Sec. 24-9n-35w, Santa Barbara County, is bailing from 1900 ft. Casing is set at 1500 ft.

Simi Test Going Deeper

Andrew Miles is moving in heavier equipment to carry ahead from 3810 ft. the Wiekhorst No. 1 wildcat on Sec. 11-2n-18w in the Simi area, Ventura County. R. E. Havenstrite, Operator, will drill Tapo No. 1 on Sec. 13-3n-18w.

Sespe Wildcat Coring Ahead

Considerable oil formation evidently has been cored by Merchants Petroleum Corporation's Bonebrake No. 1 wildcat on Sec. 6-4n-19w at Sespe, which at last reports was making hole at 3050 ft. Eagle Rock Petroleum's Eagle Rock No. 1 on Sec. 36-5n-20w is drilling at 2170 ft.

Santa Rosa Test Drills

Signal Oil & Gas, Honolulu and Macco Corporation are drilling at 1455 ft. with their second test on Sec. 13-2s-32w on Santa Rosa Island, off the Santa Barbara coast. The first try was abandoned at 3772 ft. The current job is called Tecolote No. 1.

Montalvo Test Starting Work

Standard of California is beginning preliminary work on another test well in the Montalvo area of Ventura County. This latest drilling effort is McGrath No. 22-8 on Sec. 30-2n-22w. No. 102-7 on Sec. 25-2n-23w is completing at 10,008 ft. The company's Ventura County Mortgage Company No. 59-1 on Sec. 24-2n-23w has reached 11,150 ft. and is continuing to drill and spot core deeper. At North Montalvo Superior Oil's Limoneria No. 1 on Sec. 9-2n-22w is probing deeper at 14,527 ft.

Bardsdale Try Slated

An Eocene test is planned by Union Oil at Bardsdale. The test will be made through the medium of V.F.R. No. 3 on Sec. 12-3n-20w. Cleveland Oil's Elkins No. 4 on Sec. 7-3n-19w also will test the Eocene. It is drilling below 2500 ft. The objective formation was tapped recently for oil in quantity by the Scott-O'Keefe Elkins No. 2 well.

Conejo Try Remains Idle

Tools are still idle at 7240 ft. in Ti-Bell Drilling & Roy's Janss No. 1 wildcat near Conejo on Sec. 33-2n-19w, Ventura County.

Shell Oil Co. crew pulling Fee No. 4 at the Signal Hill field. Left to right: E. E. Hajek, well puller; C. H. Christie, operator; G. T. Peters, well puller; M. F. Laiblin, well puller.

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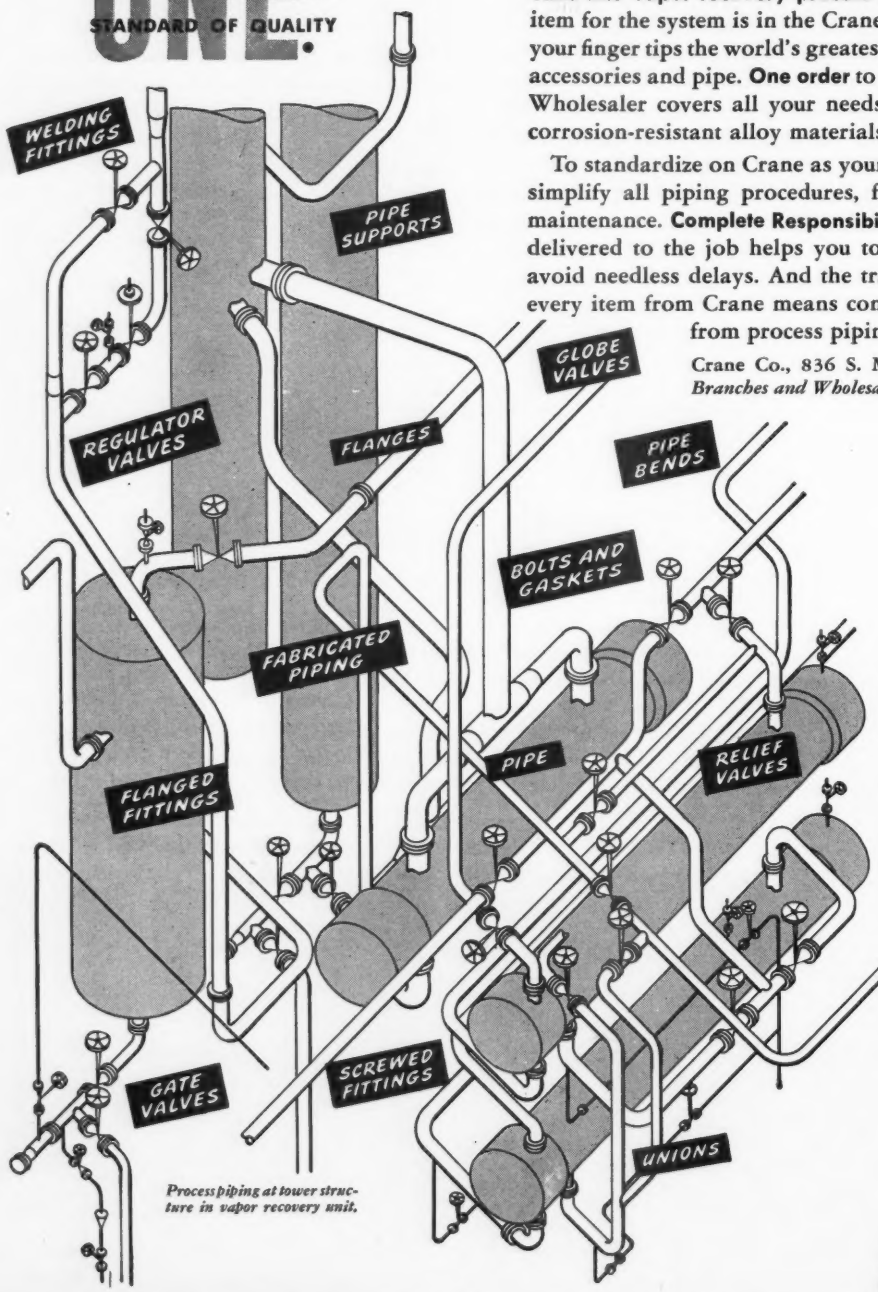

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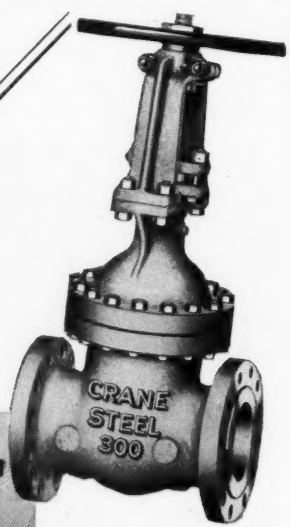

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San Joaquin Valley

Cuyama Valley Adds Producers

Recent well completions by Richfield Oil at Cuyama Valley include a brace of satisfactory producers. Quality No. 52-31 on Sec. 31-11n-27w on a 5-hour gauge flowed at the rate of 133 barrels a day from 3085 ft. Quality No. 53-31 came in from 3090 ft. for 445 barrels daily. Two miles north of the White Rock sector, the company is drilling on down below 1400 ft. with its Harrington-U. S. No. 1 on Sec. 14-11n-28w. Approximately 13 miles from the Russell pool, Rickard-King No. 1 on Sec. 26-12n-30w is drilling at 3200 ft. Off the northeast edge of the White Rock sector, Southern California Petroleum Corporation is drilling at 1200 ft. with its Joice No. 1 on Sec. 24-11n-28w. Hancock Oil is rigging to start the drill in its Wood Callahan No. 1 on an 80-acre lease on Sec. 25-11n-28w. Richfield, incidentally, has plans drawn for a casinghead gasoline absorption plant on Sec. 30-11n-27w. It will handle gas from wells in both the White Rock and Russell sectors. Increased transportation facilities are operating at Cuyama Valley. The Cuyama Bus Lines gives service between Cuyama and Santa Maria. The Air Line Bus Line operates between Cuyama and Taft via Maricopa.

Kern River Wells Added

Cleveland Oil Company has completed three new wells on its David lease in Sec. 26-28s-27e in the Kern River field. David No. 11 and No. 12 were finished for 50 and 42 barrels, respectively. No. 32 is on the pump for a yield yet to be gauged.

Gosford Scene Of Followup Project

Hancock Oil is starting a second drilling job in the field at Gosford. Known as KL No. 83-23 it is located 1650 ft. south and 330 ft. west from the northeast corner of Sec. 23-30s-26e and north of the company's KCL No. 85-23 discovery. Present yield of the field opener is 236 barrels of 34.7 gravity oil a day through a 10/64-in. orifice. Gas yield is 36,000 cubic ft. a day. The well, about 2½ miles northeast of the Ten Section field, flowed initially at a rate in excess of 500 barrels daily. Drilled to a total depth of 8476 ft., the well is producing from the Stevens sand. Hancock holds 1900 acres surrounding the discovery. Others in the play include General Petroleum, Pacific Western and Union and Superior.

Gould Hills Test Drills

McCarthy Oil & Gas Company is drilling ahead at 1100 ft. with Richardson No. 46 on Sec. 7-29s-21e at Gould Hills, after cementing pipe at 510 ft.

San Benito County Exploratory Scene

Coalinga Welding & Drilling Company is drilling at 1805 ft. with Ashurst No. 1-27 on Sec. 9-17s-11e in the Ciervo area of San Benito County. Texas Company's Ashurst NCT 2 No. 1 on Sec. 27-16s-11e is about ready to commence drilling. Hollister Oil & Gas Company has staked No. 1 test on Sec. 11-12s-5e near the town of Hollister. Centennial Oil Company is planning a test of the Flint ranch four miles northeast of Hollister. The project has been tagged Flint-Centennial No. 1 and it will prospect on a 950-acre lease in Secs. 8 and 9-12s-6e. Five miles northeast of Bittersweet just east of San Andreas fault, Regent Oil is drilling Baumgartner No. 2 on Sec. 26-17s-9e. Present depth is 200 ft.

Famosa Try Digs

In the Famosa area of Kern County, Morton & Sons is drilling sand and shale at 3310 ft. in Bender-West No. 1 wildcat on Sec. 20-27s-26w.

Kern Bluff Trial Scene

National Iron Works of San Diego has locations for two test wells in the Kern Bluff area. National United No. 1 is 640 ft. south and 220 ft. east from the center of Sec. 18-29s-29e, an east offset to Gene Reid Exploration's Muir No. 2 producer. National United No. 2 is 1080 ft. south and 200 ft. east from the center of the section. The lease embraces 120 acres. The Muir No. 2 was completed at 1238 ft. for 87 barrels of 13.7 gravity oil, cutting

Lunchtime on Standard Oil Co.'s "Stocker No. 10 Lease" for the electrician crew in the Inglewood field. In truck cab, W. T. Roberson, foreman; seated, left to right: Harold Fellbaum, electrician; Howard Hamilton, electrician; E. W. Dennison, electrician; R. C. Kitchel, electrician.

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initially 40 per cent. Gene Reid is starting Muir No. 12 and No. 17 in the section.

Tejon Hills Test Spudded

Seeking shallow production similar to that developed by Tejon Hills Oil Company, Rainbow Oil Company has spudded its Rainbow No. 2 on Sec. 14-10n-19w at Tejon Hills in Kern County. The target will be three possible productive zones above 1000 ft. Tejon Hills Oil's newest producer is No. 9 on Sec. 10-11n-18w. It is pumping 63 barrels a day from 550 ft. A mile and one-half southwest of Tejon Hills production, Steele Petroleum Company is drilling at 850 ft. in Roco No. 1 on Sec. 15-11n-18w. Oil sand was cored at 623-643 ft.

Delano Try Drills Ahead

Approximately one mile from its first test, Humble Oil & Refining is drilling Di Giorgio No. 2 in Sec. 30-24s-26e near Delano in Tulare County. Present depth is 2100 ft. R. E. Troutt's Veach No. 1 in Sec. 13-24s-27e in the Terra Bella area has been abandoned at 1929 ft. Hudson Oil Company was last reported drilling in granite below 1050 ft. with Hudson-Ray No. 1 in Sec. 24-22s-27e.

Guijarral Hills Adds New Ground

Robert S. Lytle, Operator, has completed No. 68-34F on Sec. 34-20s-16e, a quarter of a mile west of Barnsdall's discovery well. The Lytle well started off from 8829 ft. flowing to sump in quantity. The top of the Leda oil sand zone was reached at 8669 ft. One-half mile north of the discovery, Barnsdall's Allison No. 84-34 on Sec. 34-29s-16e is stadning with pipe set at 8721 ft. Barnsdall has 5 other wells at various operational stages in the area. Standard is drilling at 6400 ft. in No. 35-5 on Sec. 35-20s-16e.

Fruitvale Try Ready

LeBow & McNee is about to spud No. 65-D test in Sec. 34-29s-27e near the Fruitvale field in San Joaquin Valley.

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South Belridge Redrills Listed

Acquisition by the South Belridge Oil Company of a lease on 160 acres in Sec. 11-29s-21e, has been announced by Samuel Bennett, president. Plans call for the redrilling of 24 wells on the property, drilled originally by Chanslor-Canfield Midway. New production will be sought between 1200 and 1400 ft.

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Pattiway Try Cements Pipe

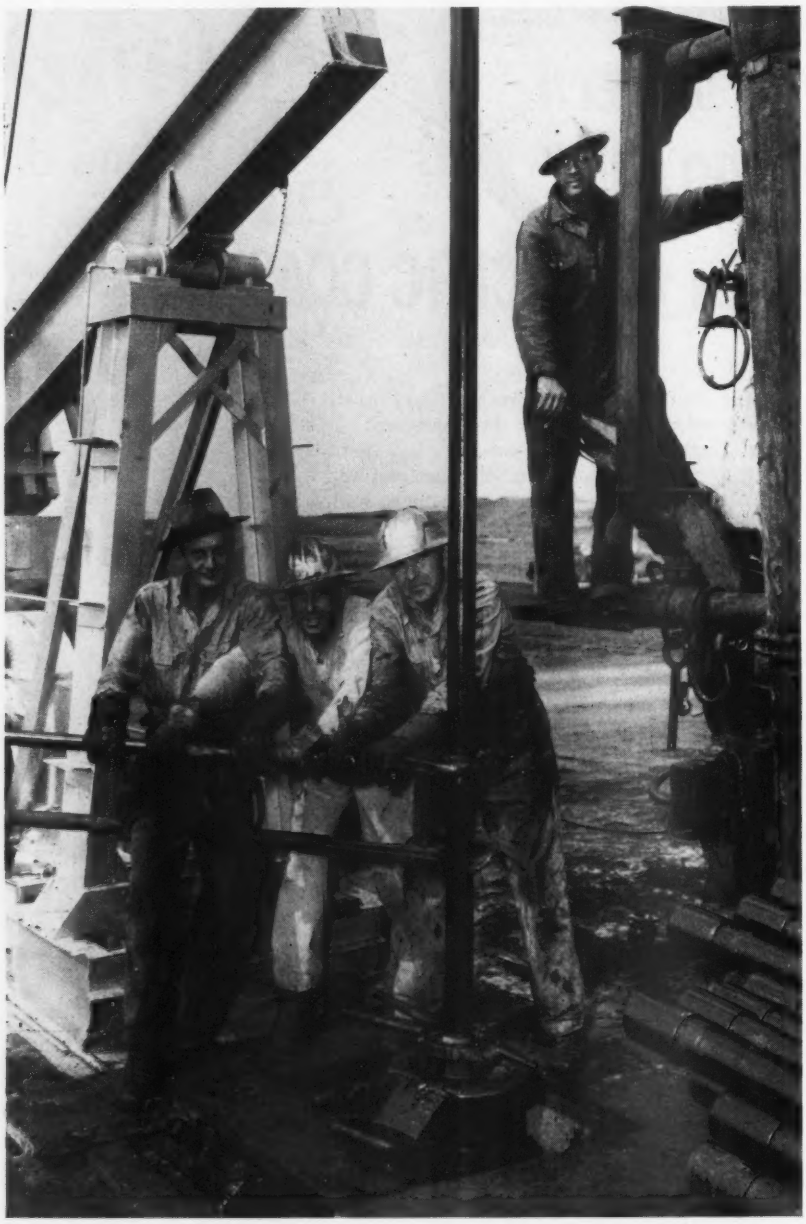
A small pumper is anticipated for C. W. Colgrove's Klipstein No. 52-18 test on Sec. 18-10n-23w in the Pattiway area. The well, south of Maricopa, was redrilled to 2260 ft., after going to a bottom totaling 5026 ft. Casing is set at 1372 ft. and liner landed at 2260 ft. Production at this location would be construed as a southern extension of Midway-Sunset.

Temblor Try Cements Pipe

H. F. Delanty is drilling ahead at 400 ft. in his No. 27 on Sec. 36-29s-20e in the Temblor area, after setting surface pipe at 282 ft.

Greeley Try Digs

Standard of California is reaming to run casing in its KCL No. 12-21 on Sec. 7-29s-26e at East Greeley, after coring oil-stained sand in the Eocene between 13,352 and bottom at 13,374 ft. On Sec. 23-29s-25e, General Petroleum is drilling ahead at 9600 ft. in KCL-Calder No. 38-23. The project is credited with showings at several intervals.



In the Inglewood Field, well pullers on M. G. N. Oil Co.'s well No. 1, Harbor Production Co. contractors. Left to right: A. L. Myers, well puller; G. O'Neal, well puller; N. M. Whitling, well puller; Don West, operator.

Panorama Hills Wildcat in Shale

Drilling shale at 4775 ft. is the present stage of operations in Western Gulf's BAC-US No. 1 on Sec. 8-31s-21e in the Panorama Hills of San Luis Obispo County.

Race Track Try Starts Working

British American Oil Producing and Capital Company are rigging derrick for their Portals-Grayson No. 16A-3 on Sec. 3-30s-29e at Race Track Hill. The combination's Arvin B No. 14A-26 on Sec. 26-31s-29e at Arvin was a production failure to 8016 ft. and has been abandoned.

Tejon Wells Drill Ahead

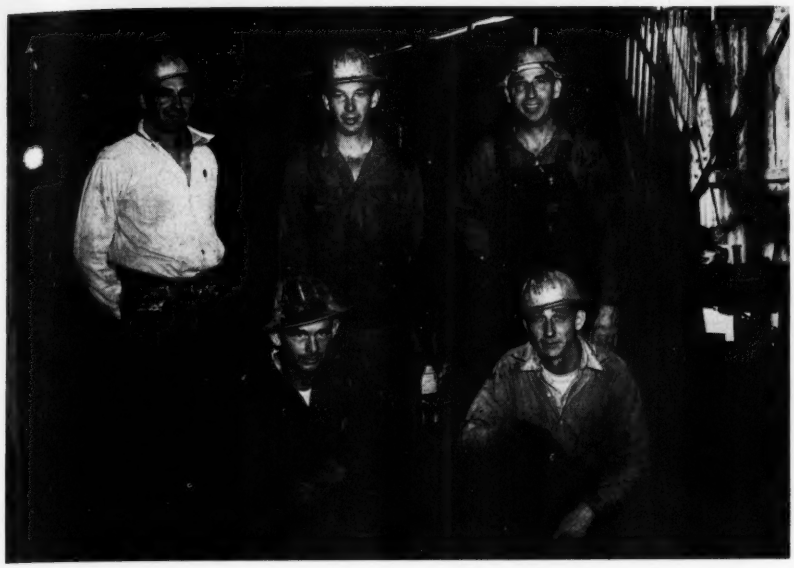
Chanslor-Canfield Midway Oil Company's No. 100-32 on Sec. 32-11n-19w in the Tejon area is coring at 4800 ft. in shale, showing thin streaks of gray sand. On Sec. 9-11n-18w, Jergins Oil is making hole ahead at 600 ft. in Tejon No. 55. Ridge Hills Oil's No. 34-9 on Sec. 34-11n-19w is completing at 2722 ft. Tide Water Associated is ready to start Tejon No. 34-9 on the section.

Coalinga Try Drills

About 7 miles north of Guijarral Hills production, Superior Oil Company is drilling its S.P.L. No. 33-27 on Sec. 27-19s-16e at Northeast Coalinga. The hole is approaching 10,000 ft.

Raisin City Test Spudded

Spudded and drilling ahead in surface formations is Harry C. Long's Lowe No. 1 test on Sec. 27-14s-18e in the Raisin City area, Fresno County. Location is about 5 miles northwest of the field.



In the Ventura Avenue field at Shell Oil Co.'s well, Schmidt No. 1, rear row, left to right: S. S. Mitchell, driller; A. K. Kolkman, derrick; George Hoopingarner, cat head; front row, left to right: K. Clow, lead tong; William Howell, pipe racker.

Dyer Creek Test Listed

W. R. Gerard, Santa Maria Valley oil producer, is preparing to drill Gerard-Cairns No. 1 test on Sec. 11-26s-27e in the Dyer Creek area, Kern County.

Mountain View Well Completed

Flowing at the daily rate of 360 barrels of 32.5 gravity oil, cutting 15 per cent initially, Hogan Petroleum Company has finaled Symons-Bankline No. 6 on Sec. 4-31s-29e in the Mountain View area. Total bottom is 6967 ft., with plug at 6080 ft. Casing was landed on bottom.

Jacalitos Well Flows

Union Oil has completed a westerly extension to the Jacalitos field in Fresno County. It is Son Fee No. 85-20 on Sec. 20-21s-15e, which started off from 3569 ft. with a flow of 365 barrels a day through a 20/64-in. orifice. The project has been shut in awaiting storage.

Round Mountain Test Scheduled

On the Tarabino lease in the South Round Mountain area, Continental Oil Company is moving ahead with preliminary work leading to drill of a well on Sec. 5-29s-29e.

Chatsworth Test Repairs

Rig is being repaired on Regent Oil Company's Runkle No. 1 explorer on Sec. 14-2n-18w in the vicinity of Chatsworth, Ventura County.

Kettleman Hills Venture Drilling

Drilling is progessing at 9200 ft. in Middle Dome Corporation's No. 52-20V try on Sec. 30-23s-19e in the Middle Dome area of Kettleman Hills. Standard's No. 68 on Sec. 4-24s-19e is making hole at 6900 ft. On the South Dome, Standard's S. F. & F. L. No. 4-2 on Sec. 12-25s-19e is redrilling below 12,700 ft. At Lost Hills, the company is coring ahead at 14,600 ft. in Van Sicklen No. 45 wildcat on Sec. 26-27s-21e.

Shale Point Test Planned

Fay Wright, widely known Los Angeles geologist, is commencing an interesting test well known as O Kay No. 1 on Sec. 32-27s-19e in the Shale Point area of Kern County. Wright's Stewart lease covers 560 acres.

Bacon Hills Test Fishing

Fishing roller has the attention of Seaboard Oil in its No. 27-21 on Sec. 21-28s-20e in the Bacon Hills area. Present depth is 8532 ft., with the next several hundred feet of hole bordering on critical levels.

Arvin Try Grows Deep

On Sec. 3-32s-29e near Arvin, Ohio Oil Company continues to explore deeper with its Mitchell No. 1 wildcat. Present depth is below 13,750 ft.

In the Cuyama Field, Santa Fe Drilling Co. contractors on Richfield Oil Corp.'s well Quality 42-31, rear row, left to right: H. J. Raycraft, derrick; Bobbie Smith, driller; Frank Gay, lead tong; front row, left to right: Herbert Davis, cat head; Clyde Abercrombie, backup.

California Oil World's Monthly Summary

CALIFORNIA DEVELOPMENT AND PRODUCTION

	OCTOBER, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 10 Months	Daily Average October 1948	Daily Average October 1947
SAN JOAQUIN VALLEY REGION						
Ant Hill					981	1,358
Antelope Hills					1,413	1,298
Bellevue					254	307
Belridge—North				1	3,337	3,769
Belridge—South	1	3	167	30	7,891	5,151
Blackwell's Corner	1				128	165
Buena Vista	2	4	291	14	44,821	47,041
Canal					830	2,018
Coalinga Group						
Eastside	3	7	488	58	19,411	14,895
Oil City					68	85
Coalinga—Nose					54,072	52,587
Coalinga—Northeast				3	9,726	9,413
Guijarral Hills	4			1	420	
Pleasant Valley				1	3,891	4,217
Jacalitos	3	2	557	18	6,668	4,996
Westside	2	9	238	40	7,319	6,578
Coles Levee—North	2	1	505	6	14,683	17,204
Coles Levee—South				1	2,212	3,286
Edison	2	2	395	23	11,717	11,222
Elk Hills	4			3	6,342	5,319
Fruitvale				3	6,568	6,422
Greeley	1				14,027	14,149
Helm					3,032	4,748
Kern Bluff	5	4	281	44	2,009	65
Kern Front	4	7	113	43	8,669	8,830
Kern River	5	19	573	232	13,787	10,869
Kettleman North Dome	2	1	73	9	35,215	37,014
Lanare					1,381	1,615
Lost Hills	6	6	155	67	8,342	6,093
McKittrick Group						
Belgian Anticline	2			2	1,213	889
Cymric	1	2	50	54	14,605	16,724
McKittrick	2			4	2,856	2,795
McKittrick Front				3	1,945	1,619
Salt Creek					4,807	7,783
Sheep Springs					533	1,342
Temblor Ranch					93	124
Midway-Sunset	6	3	129	85	40,623	42,280
Mt. Poso Group	2	1	64	16	11,862	13,518
Mountain View	5	1	9	11	3,288	4,564
Paloma	8	2	740	24	12,083	9,915
Poso Creek Group	5	1	93	10	3,580	3,596
Pyramid Hills	2				227	273
Race Track Hill				4	1,992	1,933
Raisin City	1	1	18	7	2,989	2,494
Rio Bravo					11,986	12,680
Riverdale				1	2,873	4,359
Round Mountain Group		1	69	16	7,199	7,923
Russell Ranch	7	5	1632	20	3,908	
Strand					224	1,151
Strand—East					372	604
Tejon Ranch	1			5	2,996	3,485
Ten Section	1	1	1642	4	5,532	7,421
Union Avenue					208	232
Wasco					79	188
Wheeler Ridge		2	110	11	524	220
Other Fields	5	3	73	35	1,531	935
TOTAL—San Joaquin Valley Region	95	88	8,465	909	429,340	429,761
COASTAL REGION						
Santa Maria District						
Barham Ranch (Los Alamos)					9	
Casmalia		2	272	10	1,316	748
Cat Canyon—East	1	1	69	2	814	621
Cat Canyon—West	5	3	287	40	17,753	12,903
Four Deer				5	765	198
Gato Ridge		1	111	2	3,323	3,631

	OCTOBER, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 10 Months	Daily Average October 1948	Daily Average October 1947
COASTAL REGION—Continued						
Guadalupe	1	1	84	2	23	.....
Lompoc	.....	.....	.....	24	7,358	4,938
Olivera Canyon	2	.....	.....	4	944	74
Orcutt	2	2	98	15	4,478	4,682
Santa Maria Valley	2	1	124	16	19,671	23,650
Tinaquaic	.....	2	45	2	80	16
Zaca Creek	3	.....	.....	7	2,350	629
Santa Barbara District						
Capitan	.....	.....	.....	2	2,206	2,958
Coal Oil Point	1	.....	.....	.....	.....	.....
Elwood	.....	1	95	6	7,368	6,847
Santa Barbara	1	.....	.....	.....	64	74
Summerland	.....	.....	.....	.....	2	1
Ventura District						
Montalvo West	1	1	400	4	892	137
Padre Canyon	2	1	858	14	7,004	4,011
Rincon	.....	.....	.....	2	3,263	3,301
San Miguelito	.....	2	1788	7	4,332	4,720
Ventura Avenue	12	3	2060	23	49,443	50,410
North Santa Clara Valley District						
Del Valle	4	4	394	21	10,000	8,954
Hopper Canyon	.....	.....	.....	.....	141	189
Oak Canyon	.....	.....	.....	1	1,894	1,842
Sespe Canyon Group	1	.....	.....	2	163	199
Temescal	.....	.....	.....	1	528	588
Others	2	1	145	6	620	349
South Santa Clara Valley District						
Aliso Canyon	5	.....	.....	6	3,593	3,357
Bardsdale	3	2	149	15	1,264	412
Newhall-Potrero	5	2	484	11	7,776	6,523
Oxnard	2	.....	.....	.....	1,177	1,496
Shiells Canyon	.....	.....	.....	3	918	1,021
South Mountain	5	3	392	20	6,389	5,308
West Mountain	1	.....	.....	5	870	815
Others	7	4	338	27	1,163	846
Miscellaneous	2	2	188	17	742	204
TOTAL—Coastal Region	70	39	8381	322	170,696	156,652
LOS ANGELES REGION						
Brea-Olinda	3	4	299	25	15,518	13,208
Coyote—East	2	1	212	10	5,139	4,727
Coyote—West	3	4	333	33	15,141	15,036
Dominguez	1	2	408	8	13,120	14,886
East Los Angeles	.....	.....	.....	1	1,059	1,259
El Segundo	.....	.....	.....	.....	347	443
Huntington Beach	9	9	1031	168	57,215	50,747
Inglewood	6	6	563	29	13,231	11,514
Long Beach	2	.....	.....	12	21,081	22,927
Montebello	3	1	10	4	6,587	7,004
Newport	5	3	269	40	6,813	6,709
Playa Del Rey	.....	.....	.....	.....	1,870	2,024
Potrero	2	1	104	5	1,049	960
Richfield	2	1	34	5	5,972	6,465
Rosecrans-Athens Group	2	2	50	12	4,536	4,456
Santa Fe Springs	1	1	142	7	14,758	15,707
Seal Beach	4	1	126	11	11,532	10,972
Torrance	4	2	98	10	7,706	7,774
Whittier	.....	1	2	3	914	958
Wilmington	11	14	2,283	161	131,327	135,180
Yorba Linda	.....	.....	.....	2	925	187
Other Fields	3	.....	.....	13	2,563	2,084
TOTAL—Los Angeles Region	63	53	5,964	559	338,403	335,227
EXPLORATORY						
Outpost Wells	39	.....	.....	.....	.....	.....
Wildcats	27	.....	.....	.....	.....	.....
Gas Wells	1	1	.....	28	.....	.....
TOTAL CALIFORNIA	245	153	22,810	2,215*	938,439	921,640

*Includes gas wells completed and 397 abandoned drilling wells.

THIS LAUGH

OFF!!

Boss: Do you believe in life after death?

Office boy: Yes, sir.

Boss: Then everything is in order. After you left for the afternoon yesterday to bury your grandfather, he came in to see you.

"Is he a reckless driver?"

"Say, when the road turns the same way he does, it's purely coincidental!"

Passenger: "What's the use of having a time table if the trains on this line never run on time?"

Conductor: "We couldn't tell how late they are if we didn't have a time table."

Al: There's a fellow who is going places!

Pal: Ambitious guy, huh?

Al: Nope, his wife is out of town.

A gentleman slipped on the stair of a subway and started to slide down to the bottom. Half-way down, he collided with a lady, knocking her down, and the two continued their way to the lower landing.

After they had reached the bottom, the lady, still dazed, continued to sit on the gentleman's chest. Looking up at her, he finally said politely, "Madam, I'm sorry, but this is as far as I go."

Tombstone dealer: How would just a simple "Gone Home" do for an inscription?

Widow: I guess that'll be all right. It was always the last place he ever went.

Professor: Why aren't you taking notes on my lecture?

Student: Don't have to. I've got my grandfather's.

Observer at funeral: How old are you, sir?

Aged mourner: I'm 98.

Observer: Hardly worth going home, is it?

Daughter: "Mother, what's the best way to stop Tom from spending so much money on me?"

Mother, curtly: "Marry him."

"Junior, do you like your new nurse?"

"No, mama, I hate her. I'd like to grab her by the hair and bite her on the neck, like daddy does."

Speaker: Is there any man in the house who would let his wife be slandered and say nothing? If so, please stand up.

A meek little man rose to his feet.

Speaker: Do you mean that you would let your wife be slandered and not do anything about it?

Little man: Oh, pardon me. I thought you said slaughtered.

A number of jokes which are supposed to be in vogue behind the iron curtain have been making the rounds. One of the best goes as follows:

A Soviet purchasing agent named Krish was sent to a number of countries to buy goods. Arriving in Belgrade, Krish cabled home: "Arrangements made. Long live free Yugoslavia!" He went on to Bucharest and cabled: "Arrangements made. Long live free Rumania!" And from Prague he cabled: "Arrangements made. Long live free Czechoslovakia!"

Finally Krish arrived in the United States. His final cable read: "Am in New York. Long live free Krish!"

"Honey, do you know, I'm a mind reader?"

"Then why are you sitting at the other end of the sofa?"

Judge: You say you threw your wife out of the third story window through forgetfulness?

Prisoner: That's right. We used to live on the ground floor and I forgot we'd moved up.

JENSEN--

Producers' Preference

No wonder economy-minded producers prefer Jensens. In addition to a substantial saving on initial cost because of mass production, the precision manufacture of Jensen pumping units reduces maintenance expense, cuts power costs, makes for smoother pumping performance.

Jensen will be your preference too when you know the facts and figures. See your Jensen dealer, or write to Coffeyville for free literature.

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THE OIL TOOL CORPORATION
3075 Cherry Ave., Long Beach, Calif.
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JENSEN
BROTHERS MFG. CO.
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McCullough Establishes Another Record

In an amazing demonstration of gun perforating skill and teamwork, two crews of McCullough Tool Company men, Friday November 26, 1948, broke their own world record by 210 holes in perforating a well in the Ventura, California area by shooting 6540 holes in 55 hours!

Working alternate shifts, the two crews of champions started shooting a depth of approximately 7135 feet. When they had finished, 55 hours later, 6540 perforations had covered an area of 1090 feet, comparable in height to the Empire State Building (1248 feet high).

The world record for shooting the greatest number of holes in a well at one time, has been held by McCullough for two years. During that time McCullough has broken the world record on four different occasions:

Dec. 11, 1946—4980 holes in 78½ hours at 7740 feet. (First McCullough world record).

March 18, 1947—5280 holes in 58½ hours at 5419 feet

Sept. 18, 1948—6330 holes in 42-¼ hours at 5380 feet

November 26, 1948—6540 holes in 55 hours at 7135 feet

"These records have been achieved," states I. J. McCullough, president, McCullough Tool Company, "by improved tools and equipment, concentrating on crew training, and by making it a point to obtain the best men available for such highly skilled and important work."

McCullough world champion gun perforating crew, left to right: Bill Smith, lead man; Jim Brown, lead man, "Heavy" Sanders, shooter; H. Herd, lead man; Ray Patterson, loader; Walt Dixon, lead man; Jim Helmer, lead man; Bill Ritterband, lead man; Ray "Foot" Andrade, supervisor.

Keenan Buys Large Acreage

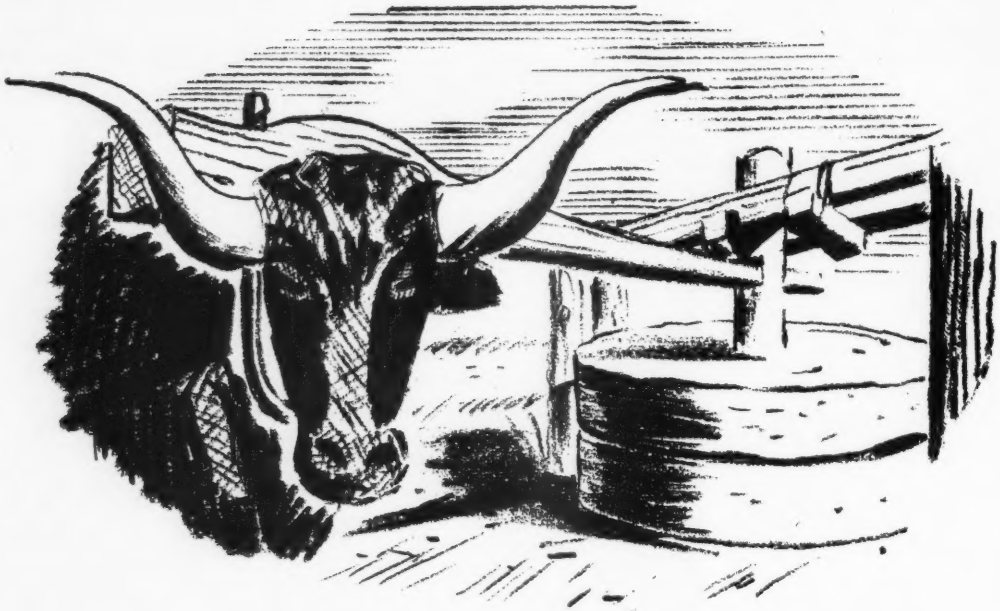
Purchase by Keenan Pipe & Supply Co. of a strategic block of industrial real estate, comprising 123,-200 square feet of land area, fronting for 176 feet on Santa Fe Avenue and 700 feet on East 27th Street, Los Angeles, was announced recently. The property is improved with a large warehouse 50 feet by 300 feet in size, and is adjacent to Keenan's two-story plant and warehouse at 2112 East 27th St., Los Angeles. The new property will be used as a warehouse for fixtures and water heaters and open air storage of pipe, and for auto parking facilities for employees and customers.

The acquisition was another move in the general expansion program by Keenan as a result of the tremendous growth in volume of business and to serve its industrial, oil, plumbing and heating customers to better advantage. Last July, Keenan completed its two-story plant and warehouse at 633 Williams Street, Bakersfield. This branch has over 100,000 square feet of space available in covered and yard storage.

In March, 1947 Kennan opened a branch in Tucson, Arizona at First and Broadway, with a large two-story brick building and warehouse.

Complete stocks of a wide range of plumbing and industrial supplies are maintained at all locations and specialized engineering advice is available if desired. American Radiator and Standard Sanitary Heating equipment; National Tube and Kaiser Pipe; Byers Genuine Wrought Iron Pipe; Walworth Lubricated plug, iron body, cast steel and brass valves; Taylor Welding Fittings; Watson Stillman Forged Steel Fittings; Bonney Forge Weldolets and Threadolets; Edward Forged Steel Valves; Dresser Couplings; Skinner Pipe Clamps; Wheeling A.P.I. Line Pipe Couplings; Toledo, Ridgid, Reed, Black & Decker, Plomb, William, and Mephisto Tools; Alabama Pipe; Soil Pipes and Fittings; Phelps Dodge Copper Tube; and Red Brass Pipe are some of the items maintained in stock.

The Signal-Honolulu-Macco combination's second test on Santa Rosa Island is drilling under contract with Santa Fe Drilling Company.



Ig the Igger had no oil

One interesting measure of the progress of civilization is the use of energy in mechanical equipment. In this country we've gone a long way since Ig the Igger first hitched an ox to his millstone, but in many parts of the world human labor and domestic beasts still furnish most of the power.

The United States has moved ahead rapidly because it uses forty or fifty times as much mechanical energy, per capita, as in primitive countries.

In the last generation it has been up to the oil and gas industry to supply more and more of the energy that supports our American civilization. Before the first World War, oil and gas supplied only 16% of the total, but now they combine to furnish 42% of all fuel energy.

Under our system of competitive business, the oil industry has done a tremendous job of supplying the money, the manpower and the ability to meet this demand for petroleum products. It is a record of which everyone in the business can be justifiably proud. You, and everyone in the oil business, have an increasingly important part in making petroleum a measure of greater progress in civilization.

GENERAL PETROLEUM CORPORATION
(A Socony-Vacuum Company)

Mobilgas

Power Rig & Equipment Co., Inc. Builds New Rig for Roberts & Lee

Power Rig & Equipment Co., Inc of 5141 Anaheim-Telegraph Road, Los Angeles, has recently engineered a complete drilling rig for Roberts & Lee, a newly formed contracting company.

Included in the equipment supplied was the new Wilson Giant Torcair Drilling Rig. This new rig is completely air controlled which provides extreme flexibility in all drilling operations. The main drum is equipped with high and low drum Wilson friction clutches, air operated. Four drum speeds are available—two from the low and high air operated Wilson friction drum clutches and two speeds from a special Wilson transmission employing "Air Tube" clutches mounted on the input shaft. A reverse drive is also contained in this transmission. From the output shaft there is a drive to the low drum clutch and a drive to the high drum clutch with a drive to the upper sand line drum which is equipped with a 24" disc friction clutch in the drum end, also air operated. Friction air operated breakout and spinning Foster catheads are mounted on the extended shaft of the upper drum. On the end of the output shaft a rotary drive is provided which is also equipped with an "Air Tube" clutch. The prime mover on this rig is a 260 H.P. GMC 6-71 Twin 6 cylinder diesel engine equipped with a Model F 11500 Twin Disc torque converter. Air is provided for operation of the clutches and engine throttle controls by an air compressor which is equipped with the Wilson automatic spring loaded clutch, V-belt driven from extra belts on the fan pulley of the prime mover. A 2" "Wichita" centrifugal water pump provides a steady stream of water which circulates through the brake rims to cool both the brake and clutch rims of the main drum. This pump is V-belt driven from the accessory shaft of the prime mover.

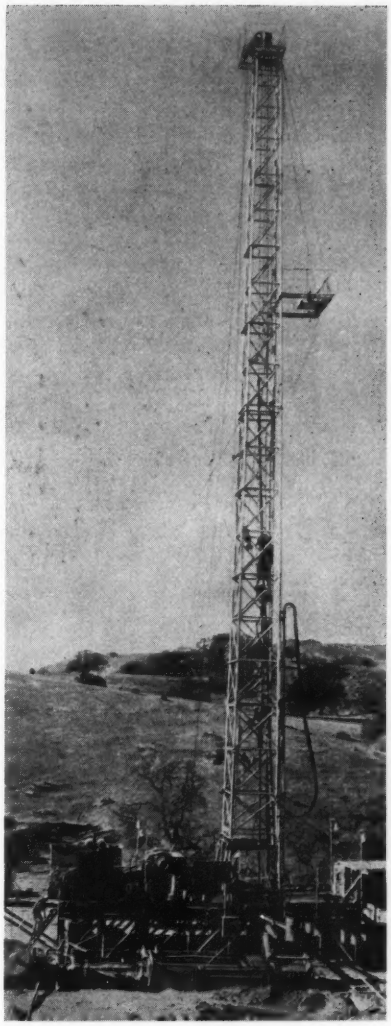
All of the controls are centrally located in a Console which is positioned adjacent to but remote from the rig. Since it requires practically no action to operate the rig from this Console, the driller has almost full time to concentrate on other drilling operations required in making fast, safe holes.

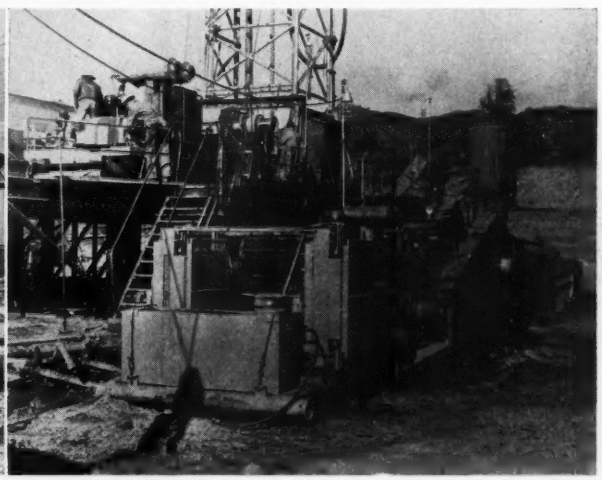
This drilling equipment is mounted on steel skids in one unit and is equipped with the new 130' Bender portable mast and sub-bases.

A separately driven unitized pump assembly is another new and outstanding piece of equipment that was engineered and developed by the Power Rig & Equipment Co., Inc. It consists of a 7¼ x 14 Wilson Snyder power pump driven by a GMC 6-71 twin engine with a 11500 Twin Disc torque converter. The pump is chain driven and the chain is completely enclosed and runs in an oil bath. The entire unit is skid mounted and conforms to California road codes.

Other equipment that was furnished on this rig included a National FE 17 ½"-44 rotary table, an Oil Well swivel, Ideal traveling block and hook, Goodall rotary hose, Baash Ross drill collars, Byron Jackson tongs, elevators and links, Macwhyte drilling line and sand

(Continued on Page 48)

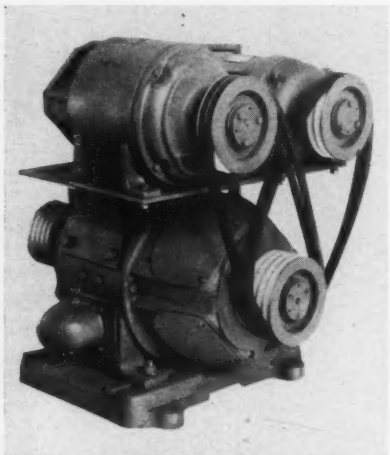




New Automatic Bit-Weight Control for Oil-Well Drilling Announced by General Electric

A new electrical system which automatically controls the weight of an oil-well drilling bit hundreds of feet below the surface of the ground has been announced by General Electric's Materials Industies Division.

Available six months subsequent to receipt of order at the factory, the new G-E automatic bit-weight control consists of four components —a drag generator, an amplidyne-controlled regulating generator and exciter, a main control panel, and an operator's control panel. It can be applied to any kind of rotary drilling operation, electrical, mechanical, or steam.



The amplidyne-controlled regulating generator and exciter, one of the four components of the newly announced General Electric Automatic Bit-Weight Control for oil well drilling.

The system automatically holds a pre-selected bit weight, independently of drilling speed, thereby assuring a uniformity of weight on the bit impossible with mechanical braking. A "drag generator" applies the electrical hold-back torque to the drawworks drum, and an amplidyne-controlled regulating generator keeps this torque constant over the selected range of drilling speeds.

This control device is expected to speed up drilling operations by minimizing the number of times the entire drill stem must be brought to the surface to replace wornout drilling bits. By controlling tension on the drill stem, the bit-weight control eliminates excessive wear on the drill's sharp cutting edges and bearings.

Simple to install, the bit-weight control system requires no additional power source; the same engine that drives the rig, belt-drives the regulating generator. The connecting power cables are equipped with coupler plugs and sockets.

Additional information on the new system is available in Bulletin GEA-5055.

National Tube Appoints Perry Kilsby, Inc.

Columbia Steel Company, Western subsidiary of United States Steel Corporation, recently announced the appointment of Perry Kilsby, Inc., of Los Angeles, as distributor for Shelby seamless tubing manufactured by National Tube Company and marketed by Columbia on the Pacific Coast.

The new distributor will maintain stocks of Shelby tubing in sizes in demand by West Coast industries and will also accept orders for direct mill shipment. It will handle tubing in all carbon, alloy, and stainless analyses, hot finished and cold drawn for all types of applications. The staff of the newly appointed distributor is composed of technically trained tubular specialists.

Power Rig

(Continued from Page 47)

line, J & L 4½" drill pipe with Hughes tool joints, Mission rotary slips, Martin Decker Sealtite weight indicator and Baroid mud equipment. Many other items were purchased in the Bakersfield area.

Hank Roberts and Paul Lee, both of whom are well knowr in the oil industry, are justly proud of their new drilling equipment. A visit to their rig would be appreciated by both Hank and Paul. It is operating in the Cuyama Valley for the Richfield Oil Corporation.

Mojave Try Fishes

Paul Beamer is fishing in his No. 1 wildcat in Sec. 20-32s-36e in the Mojave area, Kern County. Present depth of the hole is 910 ft.

Bowen Operating and Maintenance Manuals

S. R. Bowen Company has recently revised and improved the operation and maintenance manuals on the following Bowen tools: JUNK BASKETS, JARS, JAR TESTERS, SAFETY JOINTS, OVERSHOTS, SOCKETS, SPEARS, LINE WIPERS and BUMPER SUBS. These manuals contain complete specification sheets on the tools and accessories. The working of each mechanism is fully illustrated and explained and detailed operating and maintenance instructions are given.

Owners and users of Bowen Equipment can secure copies of these manuals by writing the S. R. Bowen Company, Santa Fe Springs, California.

Cable tools remain a conspicuous part of the production branch of the petroleum industry. According to the "Humble Way," house organ of Humble Oil & Refining Company, approximately one of every three wells drilled in the United States uses the cable tool method. During the first half of 1948, some 5000 wells were drilled by this simple method of lifting the chisel-shaped bit and tools and dropping them again and again to grind up the rock. This figure represented 28 per cent of all the wells drilled in the country in that period. Not included are wells drilled with rotary and finished with cable tools, but only "big holes" drilled exclusively with cable tools. Most "standard tool" activity is near the petroleum industry's birthplace in Pennsylvania and neighboring states. Cable tools are widely used, however, in East, North and West Texas and on into Kansas.

Petroleum economists estimate that by the summer of 1949 the available supply of oil will approximate 5,700,000 barrels daily, with the possibility that production may soar to even a higher figure during the year in the event present upward trend continues.

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CALIFORNIA

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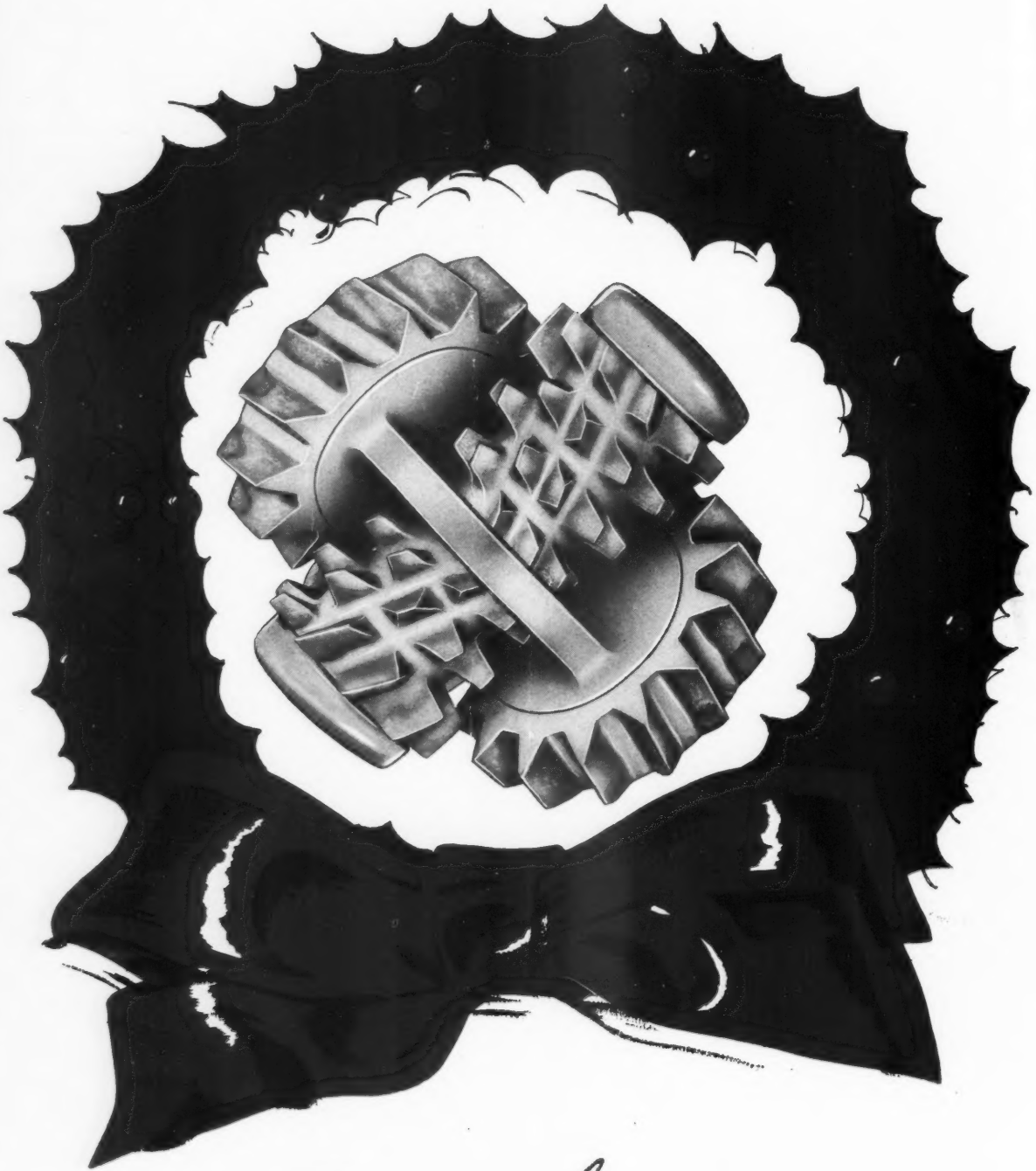
GREETINGS

HALLIBURTON OIL WELL CEMENTING CO.

DUNCAN, OKLAHOMA



Season's Greetings

H C Smith Oil Tool Co.